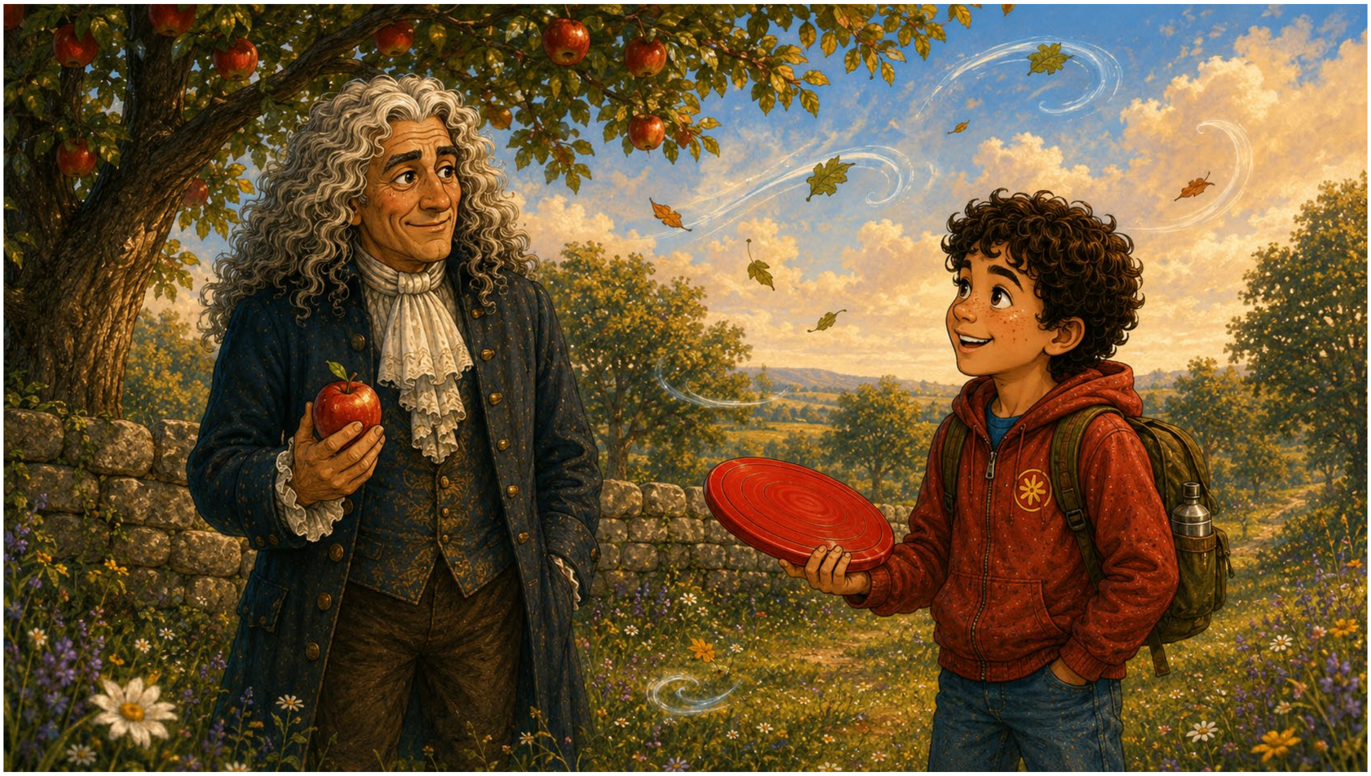

THE ADVENTURES WITH FRISBEE ROB

The Long Way Down

Adventure 001: Isaac Newton

COMPLETE TEACHER GUIDE SET

GRADE 6

ELAL	Math	Science	Social Studies	PE & Wellness

Wonder in Motion

Alberta K–6 Curriculum · Adventure 001

THE ADVENTURES WITH FRISBEE ROB

The Long Way Down

Adventure 001: Isaac Newton

GRADE 6

ENGLISH LANGUAGE ARTS and LITERATURE

Teacher Guide

Interpretation Under Review

GRADE	SUBJECT	TIME
Grade 6	ELAL	2 × 30 minutes

CENTRAL QUESTION

How can explicit and implicit evidence, synthesis, and self-monitoring help us build and refine an interpretation of the Adventure?

Wonder in Motion

Lesson at a Glance

Teachers with a continuous 60-minute block may teach both sessions together.

Story connection	The Adventure states what Rob and Newton observe but leaves larger meanings open. Readers can interpret the three journeys, Rob's changed attention, Newton's silence, and the unanswered Moon question in more than one defensible way.
ELAL focus	Distinguishing explicit and implicit information, inferring and synthesizing, developing interpretations, evaluating text evidence, considering alternatives, and assessing comprehension strategies.
Learning intention	We are learning to construct an interpretation from evidence, test it against an alternative, revise it when necessary, and evaluate the strategies that helped.
Core experience	Across two sessions, students build an Interpretation Board, classify evidence, test plausible readings, rehearse claim-evidence-reasoning-qualification responses, and share refined interpretations.
Flexible use	Session 1 is a complete core lesson and can be used independently. Session 2 continues the same Wonder Lab through rehearsal, challenge, qualification, sharing, and deeper questioning.
Use after reading	Read Adventure 001 before beginning. Keep the story available for close reading and cross-checking evidence.
Story context	Isaac Newton was a real historical person. Claims about the fictional Newton must remain distinct from claims about the historical person.

Optional Teacher-Spoken Success Indicators

I can distinguish what the text states from what I infer.
I can synthesize evidence from across the Adventure into a defensible interpretation.
I can test my interpretation against an alternative or conflicting clue.
I can qualify or revise my claim and evaluate which comprehension strategies helped.

How to Use This Guide

THE GUIDE IS A TOOL, NOT A SCRIPT

This guide is designed to support responsive teaching rather than prescribe every word or action.

Session 1 is a complete 30-minute Grade 6 Comprehension lesson and can be taught independently.

Session 2 continues the same interpretive and evaluative work through rehearsal, refinement, sharing, and questioning. It does not introduce additional curriculum.

Follow productive student thinking and conversation while protecting the central question, selected Comprehension KUSP, explicit/implicit analysis, synthesis, evidence-based interpretation, qualification, and self-monitoring, meaningful participation, and approximate lesson timing.

Adjust the amount of text, grouping, response mode, language support, and pacing to meet the needs of the learners in front of you while preserving the comprehension goal.

The purpose is not to locate one hidden official theme. Students build the most responsible interpretation the available evidence supports and preserve uncertainty when the text remains open.

The goal of the second session is not to do more. It is to give students enough time to think, try, improve, and communicate what they understand.

Curriculum Alignment

Organizing Idea	Comprehension: Text comprehension is supported by applying varied strategies and processes and by considering both particular contexts and universal themes.
Guiding Question	How do comprehension strategies enhance interpretations of texts?
Learning Outcome	Students interpret and respond to texts through application of comprehension strategies.
Assessment Focus	Gather formative evidence through explicit/implicit analysis, inference, synthesis, evidence-based interpretation, evaluation, and self-monitoring.

Selected KUSP for These Lessons

KUSP element	Selected curriculum learning	What it looks or sounds like
Knowledge	Strategies for increasingly complex texts include predicting, inferring, making connections, summarizing, synthesizing, and evaluating. Ideas and information may be explicit or implicit. Inferences and predictions can concern plot, characters, setting, and main ideas. Conclusions may be based on information stated in or inferred from texts. Context clues include words, phrases, punctuation, dialogue, and visual information.	Students classify evidence, explain what must be inferred, and choose strategies appropriate to the interpretive problem.
Understanding	Comprehension, interpretation, and management of information are	Students synthesize evidence into a claim, recognize uncertainty, and

KUSP element	Selected curriculum learning	What it looks or sounds like
	enhanced through critical-thinking strategies and skills. Comprehension includes analyzing, summarizing, and synthesizing information and ideas. Interpretation requires attention to explicit and implicit contextual information.	explain how an alternative reading or conflicting clue affects the interpretation.
Skills & Procedures	Incorporate strategies to comprehend, interpret, and manage information. Evaluate the effectiveness of strategies and apply self-monitoring skills. Analyze and synthesize ideas and information. Examine explicit and implicit information. Make inferences. Revise or confirm predictions. Use evidence from texts or additional sources to support responses and interpretations. Interpret and draw conclusions from stated and implied ideas, distinguish stated from inferred information, and analyze using text evidence.	Students build, test, qualify, revise, rehearse, and share an interpretation while reflecting on the strategies used.

Curriculum source: Government of Alberta, English Language Arts and Literature (K–6) Curriculum, Comprehension, pp. 55–57. [*View the Alberta program of study*]

Teacher Preparation

STANDARD PATHWAY

Use these two 30-minute sessions after students have heard Adventure 001: The Long Way Down.

Session 1: Construct the Interpretation is the core lesson. Students distinguish explicit from implicit information, synthesize evidence, consider an alternative, and build a qualified interpretation.

Session 2: Put the Interpretation Under Review continues the same Wonder Lab. Students rehearse an interpretation, test it against alternatives or tensions, qualify it when necessary, and evaluate the comprehension strategies that supported their reasoning.

If only one 30-minute period is available, teach Session 1.

If a continuous 60-minute block is available, teach both sessions with a brief transition or movement break.

Flexible Use of the Guide

Core Pathway | 30 minutes

Teach Session 1: Construct the Interpretation.

Students experience:

Get Curious → Model → Build → Think It Through

This is a complete Grade 6 Comprehension lesson and provides opportunities to gather formative evidence of the selected KUSP through explicit/implicit analysis, inference, synthesis, evidence-based interpretation, evaluation, and self-monitoring.

Full Wonder Lab | 2 × 30 minutes

Teach both sessions.

Students experience the complete Wonder Lab cycle:

Model → Build → Rehearse → Share

Session 2 deepens the same learning rather than adding additional curriculum. Students challenge, qualify, and communicate the same interpretive work rather than adding additional curriculum.

It also gives students time to deepen story-based questions through:

Puddle → Pond → Lake → Ocean

Continuous Block | ~60 minutes

If scheduling allows, Sessions 1 and 2 may be taught consecutively.

Take a brief transition after the first Think It Through. Reconnect may be shortened; preserve time for challenge, qualification, and sharing.

Materials

A copy of Adventure 001: The Long Way Down
Whiteboard or chart paper
Interpretation Board with Claim, Explicit Evidence, Implicit Evidence / Inference, Alternative or Tension, Revision / Qualification
Optional excerpt cards
Strategy cards: reread, infer, connect, summarize, synthesize, evaluate, self-monitor
Optional confidence markers: strongly supported, plausible, insufficient evidence

Before Students Begin

Prepare two plausible interpretations:
Curiosity changes how people see familiar things.
A powerful question can matter even before an answer is available.

Prepare one unsupported claim:
"The story proves Rob solves gravity."

Mark evidence that could support more than one interpretation, including Newton's final smile and silence.

Keep the Interpretation Board available for Session 2.

Use professional judgment to choose the Session 2 grouping—partners, groups of three, or whole group—that best supports productive challenge, evidence use, and participation.

Interpretive care
A defensible interpretation must account for the text. Creativity does not remove the need for evidence, and ambiguity should be preserved when the Adventure supports more than one reading.

Substitutions

Use short teacher-read excerpts, highlighted evidence, interpretation cards, or a partially completed board. Reduce the number of claims or evidence pieces while preserving the expectation to distinguish explicit and implicit information, synthesize evidence, evaluate alternatives, and revise or qualify.

Useful Vocabulary

Pre-teach essential vocabulary through an explicit vocabulary routine, providing students with opportunities to build meaning, interact with the words, and use them in context before and throughout the lesson.

Comprehension words
explicit • implicit • context • infer • analyze • synthesize • interpret • evidence • evaluate • self-monitor

Reasoning words
claim • reasoning • tension • alternative • qualify • revise • sufficient • plausible • ambiguity

An interpretation is an evidence-based understanding of meaning.

To qualify a claim is to limit or refine it so it accurately reflects the evidence.

An ambiguity is an aspect that can reasonably be understood in more than one way.

Supporting Our Diverse Learners

Use these supports proactively while preparing and teaching the two sessions.

Make it accessible	Use a visually organized board, short excerpts, and one interpretation question at a time. Model how information moves from evidence to inference to claim.
Support language	Model The text states..., This may imply..., Together, the evidence suggests..., An alternative is..., and I qualify my claim by.... Provide reasoning stems during rehearsal.
Offer response choices	Accept speaking, evidence sorting, annotation, concept mapping, dictation, communication devices, or assistive technology.
Support participation	Offer roles such as claim builder, explicit-evidence analyst, inference maker, challenger, qualifier, strategy observer, or evidence checker. Students can contribute one component of the reasoning chain.
Reduce memory load	Keep marked excerpts and the Interpretation Board visible. Permit paraphrased evidence or page pointing and limit the number of competing claims considered simultaneously.
Support rehearsal	Allow students to rehearse claim → evidence → reasoning before adding an alternative or qualification. Students may use the board while practising and revise the same interpretation after a challenger question.
Preserve the learning	Change the amount of text, number of claims, language support, grouping, or response mode—not the expectation to distinguish, synthesize, evaluate, and revise. Students still build an evidence-based interpretation and account for uncertainty.

KUSP Assessment: Evidence to Notice

FORMATIVE ASSESSMENT

Gather evidence through observations and conversations across both sessions.

Session 1 provides sufficient opportunities to gather evidence of the selected KUSP.

Session 2 gives students additional opportunities to demonstrate, refine, and communicate their understanding.

These lessons do not assess the complete learning outcome.

Evidence source	Listen or look for	Possible teacher note
Observation	Listen or look for: Student classifies explicit and implicit evidence, returns to the text when a claim is uncertain, or identifies a clue that creates tension with an interpretation.	"Moves Newton's motive from explicit evidence to inference and rereads the ending before deciding how strongly to state the claim."
Conversation	Listen or look for: Student synthesizes evidence from several story locations, explains the inferential bridge, considers an alternative, and qualifies or revises the interpretation when necessary.	"Connects changed attention, "I never stopped," and the Moon question to sustained curiosity while acknowledging that Newton's silence remains ambiguous."
Class product	Listen or look for: The Interpretation Board shows a defensible claim, explicit and implicit evidence, an alternative or tension, and appropriate revision or qualification.	"Qualifies the claim to focus on Rob because his change is most explicit and identifies Newton's final silence as open to more than one reading."

The Two-Session Flow

Session 1 — Construct the Interpretation | 30 minutes

Time	Section	Student experience
~5 min	**Get Curious**	Student experience Distinguish explicit information from inferred meaning in the ending. Teacher move Model calibrated certainty and show that the same clue can support more than one reasonable inference.
~5 min	**Wonder Lab: Model**	Student experience Observe one interpretation built, challenged by an alternative, and qualified. Teacher move Demonstrate how an alternative can expose a missing part of a claim without making the first interpretation worthless.
~15 min	**Wonder Lab: Build**	Student experience Construct a class Interpretation Board using evidence from across the Adventure. Teacher move

Time	Section	Student experience
		Require students to distinguish evidence from inference and account for a clue that complicates the claim.
~5 min	**Think It Through**	Student experience Reflect on evidence, alternatives, ambiguity, and the strategies used. Teacher move Preserve uncertainty when the text does not resolve it and gather evidence of synthesis and self-monitoring.

Session 2 — Put the Interpretation Under Review | 30 minutes

Time	Section	Student experience
~5 min	**Reconnect**	Student experience Reconstruct why the original claim needed refinement. Teacher move Focus on the evidence that created tension and the decision that followed.
~8 min	**Wonder Lab: Rehearse**	Student experience Prepare a refined interpretation with evidence, reasoning, alternative, qualification, and strategy reflection. Teacher move Use flexible grouping and require challengers to question the reasoning rather than simply disagree.
~9 min	**Wonder Lab: Share**	Student experience Compare interpretations and evaluate how strongly each is supported. Teacher move Require evidence for placement on the support continuum and notice appropriate qualification language.
~3 min	**Think It Through**	Student experience Evaluate which comprehension strategies solved which interpretive problems. Teacher move Connect specific strategies with the work they performed rather than asking which strategy students liked best.
~5 min	**Keep Wondering**	Student experience Generate increasingly deep interpretive questions anchored to the Adventure. Teacher move Keep Ocean questions inside the text; depth comes from

Time	Section	Student experience
		synthesis, ambiguity, and competing interpretations.

Session 1 — Construct the Interpretation

Get Curious | 5 minutes

Revisit the final exchange:

Rob asks why the Moon does not fall.
Newton looks at Rob and then at the Moon.
Newton smiles.
He does not answer.
Rob says he will have to come back.
The question stays with Rob all the way home.

Sort responses:

Explicit
What the story directly states.

Implicit
What a reader may infer.

Possible implicit ideas:

Newton may value the question.
Newton may be uncertain, thoughtful, amused, or intentionally silent.
Rob's learning is unfinished.
The unanswered question may matter more to the ending than a quick explanation.

Ask:

- Which statements are certain?
- Which depend on inference?
- Can the same smile support more than one interpretation?
- What evidence from earlier might help?
- When should a reader preserve uncertainty?

Teacher move
Model calibrated language: suggests, supports, may imply, is consistent with, does not prove.

Model | 5 minutes

Claim:

> *"The Adventure suggests that curiosity can make familiar experiences feel new."*

Explicit evidence:

The narrator says Rob notices familiar things as though seeing them for the first time.

Implicit evidence:

Comparing the three paths causes him to attend differently to the breeze, birds, leaves, and frisbee.

Alternative:

> *“The Adventure may be less about seeing familiar things differently and more about valuing unanswered questions.”*

Cross-check:

“I never stopped” and the final Moon question support the alternative.

Revise:

> *“The Adventure suggests that sustained curiosity changes how Rob notices familiar experiences and leads him toward questions that remain open.”*

Ask:

- Which evidence is explicit?
- What did I infer?
- How did the alternative expose a missing part of my claim?
- Did I abandon, combine, or qualify the interpretation?
- Which strategies did I use?

Teacher move
The model should demonstrate calibrated language and show how an alternative can refine rather than simply replace an interpretation.

Build | 15 minutes

Choose one starting question:

- Why does the Adventure spend time comparing the apple, frisbee, and leaf?
- Why does the author end with an unanswered Moon question?
- What larger meaning is created by Rob’s shift from watching to paying attention?

Claim

Possible claims:

Careful observation turns ordinary events into opportunities for discovery.

The Adventure presents curiosity as an ongoing cycle rather than a path to one final answer.

Learning is shown as a shared process in which different perspectives and observations create new questions.

Explicit Evidence

> *“They all returned… but each followed a different path.”*

The narrator says Rob is paying attention and seeing familiar things as if for the first time.

Newton says, “I never stopped.”

Newton does not answer the Moon question.

The question stays with Rob all the way home.

Implicit Evidence / Inference

The three objects function as more than plot events; their comparison changes Rob's way of thinking.

Newton's silence preserves the question and positions Rob as an active thinker.

The movement from frisbee to Moon broadens the scale of Rob's curiosity.

Alternative or Tension

- Could the Adventure mainly celebrate shared inquiry?
- Does humour complicate a serious interpretation?
- Does the text show Newton's perspective changing, or mainly Rob's?
- Does the unanswered question suggest productive curiosity, incomplete understanding, or both?

Revision / Qualification

Revise the claim so it accounts for the strongest tension without becoming vague.

FACILITATION PROMPTS

- Does the claim interpret meaning rather than summarize plot?
- Which evidence is most relevant?
- What inference connects the evidence to the claim?
- Are we using evidence from across the Adventure?
- What clue complicates the claim?
- Should we narrow, combine, or qualify?

Teacher move
During Build, require every inference to be traceable to evidence and every broad claim to account for at least one tension or alternative.

Think It Through | 5 minutes

- Which evidence was explicit?
- Which meaning had to be inferred?
- How did evidence from beginning, middle, and ending change the interpretation?
- Which clue supported more than one reading?
- What did the alternative interpretation help us notice?
- What remains ambiguous?

Sample Response Guidance

Possible response
"The Adventure suggests that sustained curiosity changes how Rob notices familiar experiences. The narrator explicitly says he is paying attention differently, and the final Moon question shows the curiosity continuing."
"Newton's final silence may show that he values Rob's question, but the text does not state his reason. I would qualify the claim because the smile and silence could also suggest thoughtfulness, uncertainty, or amusement."

Possible response
"The claim that Rob solves gravity is too strong. The ending gives him another question, so the evidence supports deeper curiosity and developing understanding rather than a completed solution."

Look for a claim that interprets meaning rather than summarizes plot, evidence from multiple parts of the Adventure, a clear distinction between stated and inferred information, and language that reflects uncertainty appropriately.

Session 1 Closing

Tell students:
"Today we built an interpretation, then deliberately looked for evidence that might complicate it. Strong interpretation is not about protecting our first idea—it is about making the claim fit the text."

> *"Next time, we'll put interpretations under review, challenge them, qualify them, and explain which comprehension strategies helped."*

If Session 1 is the only lesson being taught, finish by asking:
"What is one part of our interpretation you would state confidently, and one part you would qualify?"

Session 2 — Put the Interpretation Under Review

Reconnect | 5 minutes

Return to the Interpretation Board.

Remove or cover the Revision / Qualification column.

Ask students to reconstruct why the original claim needed refinement.

Then ask:

- Which evidence produced the strongest challenge?
- What alternative did we consider?
- What would happen if we ignored that evidence?

Teacher move
Reconnect should make the reason for revision visible. Ask which evidence challenged the original wording and what interpretive problem it created.

Rehearse | 8 minutes

Pairs or trios choose the class claim or a defensible alternative.

Rehearse:

Interpretation
State the claim.

Evidence
Summarize two or three clues, including at least one implicit idea.

Reasoning
Explain how the evidence works together.

Alternative / tension
Acknowledge a plausible complication.

Qualification
Refine the claim if needed.

Strategy reflection
Name the most useful comprehension strategy and explain why.

The challenger asks:

- What does the story actually state?
- Where are you inferring?
- Could the evidence support another reading?
- What does your claim leave unexplained?
- Is the wording more certain than the evidence?

FACILITATION PROMPTS

- What does the story actually state?
- Where are you inferring?
- Which evidence carries the most weight?
- Could the evidence support another reading?
- What does your claim leave unexplained?
- Is the wording more certain than the evidence?
- Which strategy helped you solve that problem?

Teacher move
Use partners, groups of three, or whole-group rehearsal based on readiness. A challenger should press for evidence, clarity, and appropriate qualification—not simply offer disagreement.

Share | 9 minutes

Invite groups to share a refined interpretation or meaningful revision.

Audience identifies:

claim
one explicit clue
one implicit idea
alternative or tension
qualification

Place interpretations on a continuum:

Strongly supported
Plausible
Insufficient evidence

Require evidence for placement.

Ask:

- What makes this more than a summary?
- Which evidence carries the most weight?
- How did the speaker distinguish inference from fact?
- What alternative did the interpretation account for?
- Which phrase shows appropriate qualification?

Teacher move

During Share, ask the audience to justify continuum placement with evidence and identify the phrase that appropriately qualifies the claim.

Think It Through | 3 minutes

- Which comprehension strategy solved which problem?
- When was rereading most useful?
- When was synthesis more useful?
- How did self-monitoring prevent overstatement?

Teacher move

Return to the central question and connect each strategy reflection with the specific comprehension problem it helped solve.

Keep Wondering | ~5 minutes

Questions can focus on one detail, connect several details, or invite deeper thinking across the Adventure.

PUDDLE

A question that can usually be explored by returning to one clear story detail.

- What does the story explicitly say Rob notices differently?
- What does Newton say about asking questions?
- What happens immediately after Rob asks about the Moon?

POND

A question that connects a few story details.

- Which clues suggest that Newton's final silence can be interpreted in more than one way?
- How does the comparison of the three journeys affect Rob's attention?
- What details connect Rob's first question with his final question?

LAKE

A question that requires thinking across several parts of the Adventure.

- How does the Adventure develop the idea of curiosity across its beginning, middle, and ending?
- Why might the three journeys function as more than simply three events in the plot?
- How does the unanswered ending change our interpretation of everything that comes before it?

OCEAN

A deeper story-based question that may support more than one thoughtful, defensible answer.

- What is the strongest interpretation of why the Adventure ends without answering Rob's Moon question?

- Does the Adventure ultimately value answers, questions, or the relationship between the two?
- Which interpretation best explains the Adventure as a whole, and what evidence or ambiguity prevents us from treating it as the only possible reading?

Invite Student Questions

Ask:
"What are you still wondering about this Adventure?"

Invite students to generate story-based questions. Choose several and ask:
"Does this feel like a Puddle, Pond, Lake, or Ocean question?"
There does not need to be one perfect classification.

FACILITATION PROMPTS

- Which evidence would you examine first?
- Is part of the question answered explicitly and part through inference?
- What ambiguity or competing interpretation makes the question deeper?
- Could two interpretations both remain plausible?
- What evidence would force us to qualify an answer?
- How can we deepen the question without leaving the Adventure?

Teacher move
A deeper question does not need to move into another subject or introduce information students have not encountered. Depth comes from noticing, connecting, interpreting, and wondering more deeply about the story itself.

Close with one student-generated question that the class would like to keep wondering about.

> *"Every adventure begins with a question. Keep wondering."*

Likely Misconceptions and Helpful Responses

If students...	Try this teacher response
If students treat interpretation as unsupported opinion:	"Which evidence and reasoning make this more than a preference?"
If students treat inference as explicit fact:	"What does the story state, and what are you adding?"
If students produce plot summary instead of interpretation:	"What larger meaning do those events create when considered together?"
If students assume one clue can prove a broad theme:	"What evidence from another part supports or complicates the claim?"
If students reject ambiguity:	"What does the Adventure leave open, and how can we describe that uncertainty precisely?"
If students use the fictional story as historical evidence:	"What can this narrative support? What would require a separate reliable source?"

If students...	Try this teacher response
If students believe a qualification weakens an interpretation:	“Does limiting the claim make it fit the evidence more accurately?”
If students treat the support continuum as a popularity scale:	“What specific evidence justifies where the interpretation belongs?”

Use the Evidence Next

If a student summarizes plot:
Ask what the pattern, contrast, or ending suggests beyond what happened.

If a student states a strong claim with weak support:
Keep the claim provisional and search for evidence or narrow it.

If a student blurs explicit and implicit:
Label each and identify the inferential bridge.

If a student ignores counterevidence:
Require one alternative or tension before finalizing.

If a student recognizes ambiguity but cannot respond to it:
Model language such as may suggest, is consistent with, and does not prove.

If a student uses strategies fluently:
Ask them to evaluate which strategy contributed what and why another strategy would have been less useful.

If a student generates mostly Puddle questions:
Challenge them to connect evidence from beginning, middle, and ending or incorporate ambiguity.

If a student communicates through a concept map or evidence sort:
Treat accurate relationships among claim, evidence, inference, and qualification as substantive assessment evidence.

Optional ELAL Extensions

Use these only when they naturally support classroom learning. They are not required parts of the two-session experience.

Competing Interpretations

Develop two plausible interpretations of Newton’s final silence. Students identify explicit evidence, inferred meaning, and the limitations of each interpretation. Ask whether one is more strongly supported or whether ambiguity should remain.

Strategy Audit

Return to the class Interpretation Board and mark where rereading, inferencing, summarizing, synthesizing, evaluating, or self-monitoring changed the analysis. Students explain which strategy solved which specific problem.

Evidence Weight

Choose one class interpretation and rank the available clues by how much interpretive weight they carry. Students explain why one explicit clue may be stronger than several loosely related details and identify any evidence that creates tension.

Interpretive Paragraph

Turn the oral interpretation into a concise paragraph with claim, evidence, reasoning, qualification, and concluding insight. Students should preserve uncertainty where the Adventure supports more than one defensible reading.

Every adventure begins with a question.
Keep wondering.

THE ADVENTURES WITH FRISBEE ROB

The Long Way Down

Adventure 001: Isaac Newton

GRADE 6

MATHEMATICS

Teacher Guide

Different Shapes, Same Area

GRADE	SUBJECT	TIME
Grade 6	Mathematics	2 × 30 minutes

CENTRAL QUESTION

How can decomposing and rearranging shapes reveal relationships among the areas of rectangles, parallelograms, and triangles?

Wonder in Motion

Lesson at a Glance

Story connection	Rob and Newton discover that the apple, frisbee, and leaf can share one important result while following visibly different paths. Grade 6 students investigate a mathematical parallel: shapes can look different while conservation of area reveals underlying relationships.
Math focus	Conservation of area, parallelograms, base and perpendicular height, rearranging a parallelogram into a rectangle, relating triangles to parallelograms, equal-area triangles, and decomposition of composite area.
Learning intention	We are learning to use conservation of area to explain and calculate the areas of parallelograms and triangles rather than relying only on memorized formulas.
Core experience	Across two 30-minute sessions, students rearrange parallelograms into rectangles, identify base and perpendicular height, compare different parallelograms with the same base and height, model a parallelogram as two congruent triangles, rehearse area explanations, and share how conservation reveals the relationships.
Flexible use	Session 1 is a complete core lesson and can be used independently. Session 2 continues the same Wonder Lab by giving students additional time to rehearse, refine, share, and deepen their mathematical thinking. Teachers with a continuous 60-minute block may teach both sessions together.
Use after reading	Read Adventure 001: The Long Way Down before beginning. The story reading is separate from the Mathematics sessions.
Story context	Isaac Newton was a real historical person. Rob's visit, their conversation, and the events they experience together are imaginative parts of the story.
Important mathematical distinction	The Adventure's "same but different" idea provides the thematic bridge to conservation of area. The mathematics in these lessons does not explain the physical movement of the apple, frisbee, or leaf.

Optional Teacher-Spoken Success Indicators

- I can identify a base and its perpendicular height in a parallelogram.
- I can rearrange a parallelogram into a rectangle without changing area.
- I can explain why parallelograms with the same base and perpendicular height have equal area.
- I can relate the area of a triangle to a parallelogram with the same base and height.
- I can use conservation of area to explain relationships instead of relying only on formulas.

How to Use This Guide

THE GUIDE IS A TOOL, NOT A SCRIPT

This guide is designed to support responsive teaching rather than prescribe every word or action.

Session 1 is a complete 30-minute Grade 6 Measurement lesson and can be taught independently.

Session 2 continues the same learning through rehearsal, refinement, sharing, and questioning. It does not introduce additional curriculum.

Follow productive student thinking and conversation while protecting the central question, selected Measurement KUSP, meaningful participation, and approximate lesson timing.

Adjust numerical values, diagrams, amount of cutting, grouping, response modes, and pacing to meet the needs of the learners in front of you.

Do not front-load area formulas as rules to memorize. The Wonder Lab is designed to make the relationships visible through decomposition, rearrangement, and conservation.

The goal of the second session is not to do more.

It is to give students enough time to transform, test, reason, revise, generalize, and communicate what they understand.

Curriculum Alignment

Organizing Idea	Measurement: Attributes such as length, area, volume, and angle are quantified by measurement.
Guiding Question	In what ways can shapes be related by using conservation of area?
Learning Outcome	Students analyze areas of parallelograms and triangles.
Assessment Focus	Gather formative evidence of selected Grade 6 Measurement KUSP through students' identification of base and perpendicular height, rearrangement of parallelograms, calculation and interpretation of area, relationship between parallelograms and triangles, and explanations of conservation. Session 1 provides sufficient opportunities to gather evidence of the selected KUSP. Session 2 offers additional opportunities for students to demonstrate and communicate their understanding. These lessons do not assess the complete learning outcome.

Selected KUSP for These Lessons

KUSP element	Selected curriculum learning	What it looks or sounds like
Knowledge	A parallelogram is any quadrilateral with two pairs of parallel and equal	Students distinguish a slanted side from perpendicular height, identify a

KUSP element	Selected curriculum learning	What it looks or sounds like
	sides. Any side of a parallelogram can be interpreted as the base. The height of a parallelogram is the perpendicular distance from its base to its opposite side. The area of a triangle is half of the area of a parallelogram with the same base and height. Two triangles with the same base and height must have the same area.	valid base-height pair, and recognize relationships among rectangles, parallelograms, and triangles.
Understanding	The area of a parallelogram can be generalized as the product of the perpendicular base and height. The area of a triangle can be interpreted relative to the area of a parallelogram. Area of composite shapes can be interpreted as the sum of the areas of multiple shapes, such as triangles and parallelograms. An area can be decomposed in infinitely many ways.	Students use rearrangement, pairing, or decomposition to explain area relationships and recognize that visual shape can change while total area is conserved.
Skills & Procedures	Rearrange the area of a parallelogram to form a rectangular area, using hands-on materials or digital applications. Determine the area of a parallelogram, using multiplication. Determine the base or height of a parallelogram, using division. Model the area of a parallelogram as two congruent triangles. Describe the relationship between the area of a triangle and the area of a parallelogram with the same base and height. Determine the area of a triangle, including various triangles with the same base and height. Solve problems involving the areas of parallelograms and triangles. Visualize the decomposition of	Students transform parallelograms into rectangles, connect base × perpendicular height to conserved area, reconstruct parallelograms from congruent triangles, and justify triangle area through the paired relationship.

KUSP element	Selected curriculum learning	What it looks or sounds like
	composite areas in various ways. Determine the area of composite shapes, using the areas of triangles and parallelograms.	

Curriculum source: Government of Alberta, Mathematics (K–6) Curriculum, Measurement. [View the Alberta program of study]

Teacher Preparation

STANDARD PATHWAY

Use these two 30-minute sessions after students have heard Adventure 001: The Long Way Down.

Session 1: Rearrange the Area is the core lesson. Students reconnect with the Adventure's "same but different" observation, compare a rectangle and parallelogram, see conservation through physical rearrangement, and investigate parallelograms with common base and perpendicular height.

Session 2: Reveal the Relationship continues the same Wonder Lab. Students return to the transformation, rehearse the parallelogram-triangle relationship, compare different-looking equal-area triangles, refine their reasoning, share evidence, and explore questions of different depths about conservation of area.

If only one 30-minute period is available, teach Session 1.

If a continuous 60-minute block is available, teach both sessions with a brief transition or movement break.

Flexible Use of the Guide

Core Pathway | 30 minutes

Teach Session 1: Rearrange the Area.

Students experience:

Get Curious → Model → Build → Think It Through

This is a complete Grade 6 Measurement lesson and provides opportunities to gather formative evidence of the selected KUSP.

Full Wonder Lab | 2 × 30 minutes

Teach both sessions.

Students experience:

Model → Build → Rehearse → Share

Session 2 deepens the same learning rather than introducing additional curriculum.

It also provides time for:

Puddle → Pond → Lake → Ocean

Continuous Block | ~60 minutes

If scheduling allows, teach both sessions consecutively with a brief movement or transition break.

Materials

- A copy of Adventure 001
- Grid paper
- Pre-drawn parallelograms
- Pre-drawn rectangles
- Pre-drawn triangles
- Scissors
- Rulers
- Right-angle tools, set squares, or paper corners
- Optional digital geometry application
- Duplicate copies of selected parallelograms
- Recording chart with:
  - Base
  - Perpendicular Height
  - Area
  - Rearrangement
  - What We Notice
- Optional transparencies or magnetic pieces

Before Students Begin

- Prepare at least two parallelograms with the same base and perpendicular height but different slants.
- Prepare one parallelogram that can be cut from a corner and rearranged into a rectangle.
- Prepare a duplicate parallelogram that can be divided along a diagonal into two congruent triangles.
- Prepare two or more triangles with the same base and perpendicular height but differently positioned top vertices.
- Clearly mark or be prepared to construct right angles.
- Ensure the numerical base and height values are manageable so computation does not overshadow reasoning.
- Keep all transformed pieces available for Session 2.
- Use professional judgment to choose the Session 2 grouping—partners, groups of three, or whole group—that best supports student participation. Early in the year, whole-group practice may help students establish the routine, build confidence, and understand what successful participation looks and sounds like.
- Decide whether students will cut their own shapes or receive pre-cut sets.

Substitutions

Use magnetic pieces, digital geometry tools, transparencies, pre-cut shapes, or projected transformations.

Useful Vocabulary

Pre-teach essential vocabulary through an explicit vocabulary routine, providing students with opportunities to build meaning, interact with the words, and use them in context before and throughout the lesson.

Mathematics words:

area • conserve • decompose • rearrange • parallelogram • rectangle • triangle • base • height • perpendicular • congruent • composite

Story words:

apple • frisbee • leaf • compare • different • same • path • return

A parallelogram is a quadrilateral with two pairs of parallel and equal sides.

The perpendicular height is the distance from a chosen base to the opposite side measured at a right angle.

Congruent shapes have the same size and shape.

Conservation of area means area remains unchanged when pieces are rearranged without adding, removing, stretching, or overlapping area.

To decompose means to break a region into smaller shapes that together represent the original area.

Supporting Our Diverse Learners

Use these supports proactively while preparing and teaching the two sessions.

Make it accessible	Begin with physical transformations before symbolic formulas. Allow students to move, cut, rotate, and pair pieces.
Support language	Model: We chose this side as the base.
The perpendicular height is...	
The area is conserved because...	
The parallelogram and rectangle are related because...	The triangle is half of the parallelogram because...
Offer response choices	Accept cutting and rearranging, drawing, annotating diagrams, pointing, verbal explanation, equations, dictation, communication devices, or assistive technology.

Support participation	Offer roles such as base identifier, right-angle checker, rearranger, calculator, evidence recorder, challenger, or explainer.
Reduce memory load	Keep visual reminders visible: Any side can be the base. Height must be perpendicular to the chosen base. No area is added or removed during rearrangement. Two congruent triangles can compose a parallelogram.
Support rehearsal	Allow students to explain the same transformation twice—first physically, then verbally or symbolically.
Preserve the learning	Reduce numerical complexity, cutting demands, or amount of text if necessary—not the expectation to reason through conservation and geometric relationships.

KUSP Assessment: Evidence to Notice

FORMATIVE ASSESSMENT

Gather evidence through observations and conversations across both sessions.

Session 1 provides sufficient opportunities to gather evidence of the selected KUSP.

Session 2 gives students additional opportunities to demonstrate and communicate their understanding.

Evidence source	Listen or look for	Possible teacher note
Observation	Student identifies a valid base and corresponding perpendicular height and uses a right angle appropriately.	"Rejects the slanted side as height and marks the perpendicular distance to the opposite side."
Conversation	Student explains why rearrangement preserves area and connects the parallelogram to a rectangle.	"Explains that the triangular piece was translated rather than changed, so no area was gained or lost."
Product	Student accurately represents the relationship among a rectangle, parallelogram, and triangle using measurements, models, or equations.	"Uses two congruent triangles to reconstruct the parallelogram and justifies the one-half relationship."

The Two-Session Flow

Session 1 — Rearrange the Area | 30 minutes

Time	Section	Student experience	Teacher move
~5 min	**Get Curious**	Compare a rectangle and slanted parallelogram and question whether appearance reveals area.	Invite predictions and surface uncertainty about base, height, and slant.
~5 min	**Wonder Lab: Model**	Observe a parallelogram being rearranged into a rectangle without changing area.	Make conservation and perpendicular height visible before introducing a generalized relationship.
~15 min	**Wonder Lab: Build**	Investigate parallelograms with common base and height and verify equal-area relationships.	Press for identification of base, perpendicular height, and conserved area.
~5 min	**Think It Through**	Explain why slant can change while area remains constant.	Connect physical transformation to base × perpendicular height.

Session 2 — Reveal the Relationship | 30 minutes

Time	Section	Student experience	Teacher move
~5 min	**Reconnect**	Reconstruct the parallelogram-to-rectangle transformation.	Require reasoning before symbolic recall.
~8 min	**Wonder Lab: Rehearse**	Model a parallelogram as two congruent triangles and rehearse the area relationship.	Prompt students to connect the physical model to one-half of the parallelogram.
~9 min	**Wonder Lab: Share**	Compare transformed shapes and differently positioned equal-area triangles.	Focus on conserved base, perpendicular height, and total area.
~3 min	**Think It Through**	Reflect on what the models reveal that a memorized formula alone may hide.	Return to the central question.
~5 min	**Keep Wondering**	Generate and deepen questions about conservation, decomposition, base, height, and area.	Use Puddle–Pond–Lake–Ocean.

Session 1 — Rearrange the Area

Get Curious | ~5 minutes

Display a rectangle and a slanted parallelogram with the same base and perpendicular height.

Do not provide the area formulas yet.

Ask:

- Which shape appears to have more area?
- What makes the parallelogram look different?
- Does a greater slant automatically mean greater area?
- What measurements might matter?
- Which segment is the height?
- Is the slanted side necessarily the height?
- Could we transform one shape to help reveal the relationship?
- What would have to remain unchanged for area to be conserved?

Invite several predictions.

TEACHER MOVE

Preserve uncertainty.

The purpose is to create a reason for transformation and perpendicular-height reasoning rather than immediately applying a memorized rule.

2. Wonder Lab

Model | ~5 minutes

Choose the parallelogram.

Identify one side as the base.

Construct or identify the perpendicular height.

Mark the right angle clearly.

Cut a triangular section from one end of the parallelogram.

Move that exact triangle to the other end to form a rectangle.

Ask:

- Did we add any material?
- Did we remove anything?
- Did we stretch the piece?
- Did any pieces overlap?
- Therefore, what must be true about the area?

Identify the rectangle’s dimensions:

base

perpendicular height

Connect the rectangle area:

base × perpendicular height

Think aloud:

> *“The rearrangement shows why the parallelogram has the same area as a rectangle with the same base and perpendicular height.”*

FACILITATION PROMPTS

- Which side are we treating as the base?
- Where is the corresponding height?
- Why must the height be perpendicular?
- Why is the slanted side not automatically the height?
- What did we change?
- What did we conserve?
- Why does the rectangle help us determine area?
- Could we choose a different side as the base?
- What would happen to the corresponding height?

TEACHER MOVE

Name conservation explicitly:

No area was added, removed, stretched, or overlapped.

The transformation reveals a relationship that already existed.

Build | ~15 minutes

Students receive parallelograms or work with teacher-prepared models.

Part 1: Identify Base and Height

Choose one side as the base.

Identify or construct the corresponding perpendicular height.

Use a right-angle referent or tool to verify.

Part 2: Rearrange

Cut or digitally transform the parallelogram into a rectangle.

Identify the rectangle dimensions.

Calculate area.

Part 3: Compare Slants

Provide two parallelograms with the same base and perpendicular height but different slants.

Ask students to predict whether their areas are equal.

Calculate or rearrange to verify.

Part 4: Reverse Reasoning

If appropriate, provide the area and base and ask students to determine the perpendicular height using division.

FACILITATION PROMPTS

- What is your chosen base?
- Where is the perpendicular distance to the opposite side?
- How can you verify a right angle?
- What happens as the parallelogram slants farther?
- Does the base change?
- Does perpendicular height change?
- What does that predict about area?
- How does rearrangement confirm your prediction?
- Which measurement determines area that the slanted side does not?
- What would need to change for area to increase?

TEACHER MOVE

Do not allow calculation to replace geometric meaning.

Pause whenever students use the slanted side as height and return to perpendicular distance.

Think It Through | ~5 minutes

Keep the transformed rectangle and original parallelogram visible.

Ask:

- Why can parallelograms with different slants have equal area?
- What did rearrangement reveal?
- Why must height be perpendicular?
- How did the rectangle help us understand base × height?
- What changed during the transformation?
- What stayed constant?
- What could change about a parallelogram without changing its area?
- What would actually cause the area to change?

Sample Response Guidance

Possible response
“The slant changed, but the base and perpendicular height stayed the same.”
“We moved one triangular piece, so we did not add or remove area.”
“The rectangle has the same base and perpendicular height, so it has the same area.”
“The slanted side can change without the area changing.” Look for reasoning grounded in conservation and perpendicular relationships.

Session 1 Closing

Tell students:

> *“Rob and Newton notice things that look different while sharing something important. Today we found a mathematical version of that idea: parallelograms can look different, but the same base and perpendicular height can reveal equal area.”*
>
> *“Next time, we will use that relationship to uncover why triangle area is connected to parallelogram area.”*

If Session 1 is taught alone, finish with:

> *“What does rearranging a parallelogram into a rectangle help us understand that the original slanted shape may hide?”*

Session 2 — Reveal the Relationship

Reconnect | ~5 minutes

Show the parallelogram and the triangular piece from Session 1 separated.

Ask students to reconstruct the transformation.

Ask:

- Where did this piece come from?
- Where did we move it?
- What rectangle did we create?
- Why did area remain constant?
- Which measurement was the base?
- Which was the perpendicular height?
- What relationship did the transformation reveal?

Then return the shape to its original parallelogram form.

> **TEACHER MOVE**
>
> Reconnection should reconstruct reasoning, not simply ask students to recite A = bh.

2. Wonder Lab

Rehearse | ~8 minutes

Give pairs a parallelogram or diagram.

Draw or reveal a diagonal dividing it into two triangles.

Ask:

- What do you notice about the two triangles?
- Are they congruent?
- Together, what shape do they compose?
- If the parallelogram has area base × height, what portion belongs to one triangle?

Students rehearse an explanation:

> *"The parallelogram has an area of…"*
>
> *"It is made of two congruent triangles…"*
>
> *"Each triangle represents…"*
>
> *"The triangle has the same base and perpendicular height relationship…"*

Partner B checks:

- Did the explanation identify the base?
- Did it identify perpendicular height?
- Did it explain why the two triangles are equal in area?
- Did it connect one triangle to half the parallelogram?
- Did it explain the model rather than only recite a formula?

Switch roles or repeat with a new example.

FACILITATION PROMPTS

- How many congruent triangles compose this parallelogram?
- What fraction of the total area belongs to one?
- Where are base and height visible?
- What does one-half mean in this model?
- Why does dividing by two make sense?
- How could you explain the relationship without beginning with a formula?
- What could make your second explanation clearer?

TEACHER MOVE

The goal of Rehearse is to move from concrete representation toward generalized mathematical reasoning.

Share | ~9 minutes

Invite several pairs to share their parallelogram-triangle explanations.

Then display several triangles with:

- the same base
- the same perpendicular height
- differently positioned top vertices

Ask:

- Which looks as though it has the greatest area?
- What does our new relationship predict?
- How could we prove the areas are equal?
- Could each triangle be paired with a parallelogram having the same base and height?
- What would the parallelograms' areas be?
- What would that imply about each triangle?

If time permits, show one simple composite region made from triangles and parallelograms.

Ask students to suggest more than one way to decompose it.

FACILITATION PROMPTS

- What stayed the same across the triangles?
- What changed?
- Why does moving the top vertex sideways not necessarily change area?
- Which evidence supports equal area?
- How does the parallelogram relationship help?
- Could we decompose the same composite shape another way?
- Would the total area change?

TEACHER MOVE

Use visual surprise productively.

A triangle that appears more “slanted” or “stretched” can still have equal area when base and perpendicular height are preserved.

Think It Through | ~3 minutes

Ask:

- What did rearrangement help us see that a memorized formula might hide?
- Why are base and perpendicular height central to area?
- How are rectangles, parallelograms, and triangles connected?
- How does conservation of area help us reason across different shapes?

Return briefly to the central question:

How can decomposing and rearranging shapes reveal relationships among the areas of rectangles, parallelograms, and triangles?

Accept several responses.

Keep Wondering | ~5 minutes

Questions can focus on one calculation or invite us to reason about conserved relationships across many shapes.

PUDDLE

A small question about one mathematical detail.

Examples:

- What is the base of this parallelogram?
- Where is its perpendicular height?
- What is the area of this triangle?

POND

A question connecting several parts of the model.

Examples:

- Why does moving a triangular piece preserve area?
- How does a parallelogram become a rectangle without changing area?
- Why is one of two congruent triangles half of the parallelogram?

LAKE

A question requiring relationships across several shapes.

Examples:

- How can parallelograms with different slants have equal area?
- How can differently shaped triangles with the same base and height have equal area?
- How does conservation of area help us understand formulas instead of simply memorize them?

OCEAN

A deep mathematical question about conservation and structure.

Examples:

- What features of a shape can change without changing its area?
- Why are base and perpendicular height more important for area than the amount of slant?
- How can one region be decomposed in many different ways yet still represent exactly the same total area?

The purpose is not for students to classify questions mechanically.

The framework helps them recognize that mathematical questioning can deepen from identifying information to explaining relationships and generalizing structure.

Invite Student Questions

Return attention to the Adventure's "same but different" idea.

Ask:

- "What are you still wondering about these shapes as a mathematician?"
- Accept questions about base, height, slant, triangles, parallelograms, decomposition, composite area, or conservation.

Choose several and ask:

> *"Does this feel like a Puddle, Pond, Lake, or Ocean question?"*

FACILITATION PROMPTS

- Could your question be investigated by rearranging a shape?
- What would need to remain constant?
- Does the question connect several representations?
- Could different decompositions lead to the same total?
- Can this Puddle become a Pond?
- What could turn this Pond into a Lake?
- What general relationship could make it an Ocean?

TEACHER MOVE

Keep questioning mathematical and anchored to the story-inspired comparison.

Do not imply that conservation of area explains the flight of the objects.

Close with one student-generated question worth preserving.

“Every adventure begins with a question. Keep wondering.”

Likely Misconceptions and Helpful Responses

If students...	Try this teacher response
If students use the slanted side as height:	“Does that segment meet the chosen base at a right angle?”
If students assume greater slant means greater area:	“What happened to the base and perpendicular height?”
If students believe rearrangement changes area:	“What was added, removed, stretched, or overlapped?”
If students recite A = bh without identifying the dimensions:	“Show me where the base and perpendicular height are in this shape.”
If students recite the triangle formula without understanding the half relationship:	“Can two copies of your triangle reconstruct a parallelogram?”
If students assume differently positioned top vertices change triangle area:	“What stayed constant about base and perpendicular height?”
If students think the base must be the horizontal bottom side:	“Could another side be the base? What would its corresponding height be?”
If students think an Ocean question must involve a very large shape:	“Ocean means deep reasoning, not a physically large area.”

Use the Evidence Next

- If a student cannot identify perpendicular height, delay calculation and focus on right-angle relationships.
- If a student identifies base and height but cannot explain conservation, return to cutting and rearranging.
- If a student understands parallelogram area but not the triangle relationship, physically pair two congruent triangles.
- If a student calculates fluently but explains weakly, require a diagram-based justification.
- If a student understands same-base/same-height triangles, introduce a simple composite-area decomposition.

- If a student identifies several decompositions independently, ask why the total must remain equal.
- If a student generates mainly Puddle questions, invite them to vary slant while holding base and height constant.
- If a student demonstrates strong reasoning through transformations but limited verbal explanation, document the transformation sequence as evidence.

Optional Mathematics Extensions

Same Base, Same Height

Draw several triangles sharing the same base and perpendicular height while moving the top vertex horizontally.

Students predict, calculate, and explain the relationship among their areas.

Composite Journey Zone

Provide one composite region made from triangles and parallelograms.

Students decompose it in two different ways and verify that both methods produce the same total area.

Formula From the Model

Hide the standard area relationship initially.

Students use a physical or visual model to explain how the parallelogram and triangle relationships arise before expressing them symbolically.

Conservation Challenge

Cut a region into several pieces and rearrange it into a noticeably different shape.

Students create an evidence-based argument that the total area is unchanged.

Every adventure begins with a question.
Keep wondering.

THE ADVENTURES WITH FRISBEE ROB

The Long Way Down

Adventure 001: Isaac Newton

GRADE 6

PHYSICAL EDUCATION & WELLNESS

Teacher Guide

Physical Education & Wellness

GRADE	SUBJECT	TIME
Grade 6	Physical Education & Wellness	2 × 30 minutes

CENTRAL QUESTION

How can we adapt a movement pattern when the frisbee situation changes?

Wonder in Motion

Teacher Guide

Adapt on the Move

Lesson at a Glance

Story Connection	Rob may know how to perform a familiar frisbee movement, but real movement situations do not always unfold exactly as planned. The frisbee might arrive somewhere unexpected. A partner might move. Available space might change. The required direction or timing may shift. The performer then has to notice, decide, and adapt. Grade 6 extends the Grade 5 movement-pattern learning from building and modifying patterns toward **applying and adapting movement patterns in controlled and dynamic physical activities**. The Adventure provides a familiar frisbee context. Grade 6 adds a more demanding movement question: **What happens when the situation changes while the movement is happening?** Students begin to distinguish between controlled practice, where conditions are predictable enough to repeat a familiar pattern and dynamic activity, where conditions become more fluid or changing and require an immediate decision. The curricular progression is: **controlled repetition → notice change → decide → adapt → evaluate**
Physical Education & Wellness Focus	Using repeated practice to establish movement patterns in controlled conditions, then applying and adapting those patterns when conditions become more dynamic. Students respond to clearly defined changes such as: • partner movement • target changes • visual cues • verbal cues • spacing changes • timing changes • direction changes They use feedback and repeated attempts to refine their movement decisions. Students consider how adaptation may affect: • accuracy • speed • proficiency The goal is not simply to react faster.

	The goal is to respond **purposefully** to information in the environment.
Learning Intention	**We are learning to recognize changing conditions and adapt movement patterns while preserving their purpose.**
Core Experience	Across two 30-minute sessions, students complete the companion **Grade 6 Adventures FlightPlan in Frisbee Playbook**.

Session 1 — Controlled to Changing

Get Curious → Wonder Lab: Model → Wonder Lab: Build → Think It Through

Students establish a familiar movement pattern under predictable conditions, then respond to one clearly defined change that requires a movement decision.

Session 2 — Adapt in Real Time

Reconnect → Wonder Lab: Rehearse → Wonder Lab: Share → Think It Through → Keep Wondering

Students apply feedback, respond to changing cues, refine movement decisions, adapt the familiar pattern in real time, and explain what changed and why.

- facilitation prompts
- teacher moves
- misconceptions
- next instructional steps
- reflection
- Adventure-based inquiry

Flexible Use

Session 1 is a complete Grade 6 Movement Skill Development lesson and independently provides selected KUSP evidence.

Session 2 gives students additional opportunities to:

- apply feedback
- recognize changing cues
- make movement decisions
- refine adaptations
- compare responses
- communicate what changed and why

Teachers with a continuous 60-minute block may teach both sessions together.

If students need additional time to establish the base pattern, protect that controlled repetition before increasing the dynamic demand.

Use After Reading

Read Adventure 001 before beginning.

The story reading is separate from the two Physical Education & Wellness sessions.

Story Context

Isaac Newton was a real historical person.

Rob’s visit, their conversation, and the events of the Adventure are imaginative.

Important Physical Education & Wellness Distinction

Grade 6 is **not simply Grade 5 with a harder frisbee task**.

The curricular shift matters.

Grade 5 focuses on combining and adapting movement patterns.

Grade 6 asks students to **apply those patterns across controlled and dynamic conditions**.

A dynamic physical activity should therefore introduce a meaningful change that requires immediate decision making.

That does not mean the activity should become chaotic.

One clear changing variable is enough.

Students should be able to answer:

- **What changed?**
- **What did I notice?**
- **What did I decide?**
- **What did I adapt?**
- **What stayed the same?**
- **Did the adjustment help?**

A thoughtful movement decision followed by imperfect execution can still provide strong Grade 6 evidence.

Likewise, an accidental successful catch does not necessarily demonstrate purposeful adaptation.

Do not judge the learning only by the final frisbee result.

The important evidence is:

recognize the change → make a decision → adapt purposefully

Optional Teacher-Spoken Success Indicators

I can perform a movement pattern in a controlled setting.

I can recognize when a movement situation changes.

I can identify the information or cue that changed.

I can make a movement decision in response.

I can adapt a movement pattern without losing its purpose.

I can use feedback to refine my movement.

I can explain how my adaptation affected accuracy, speed, or proficiency.

I can identify what stayed the same and what changed.

Frisbee Playbook FlightPlan

The FlightPlan Is the Physical Lesson

This Teacher Guide is designed to be used with the companion **Grade 6 Adventures FlightPlan in Frisbee Playbook**.

Open the FlightPlan before teaching these PE sessions.

A FlightPlan is a ready-to-use PE lesson sequence showing what students physically do, in what order, and for how long.

For this Adventure, the Grade 6 FlightPlan contains both 30-minute sessions.

The FlightPlan provides the practical information needed to run the physical lesson, including:

- session and activity sequence
- phase and activity timing
- educator notes
- Drill instructions
- coaching cues
- frisbee and equipment information
- grouping and activity-specific setup
- controlled and dynamic task conditions
- changing cues or stimuli
- modifications where applicable

When a Drill appears in the FlightPlan, select **Details** when you need its complete instructions, coaching cues, equipment information, or additional resources.

Grade 6 FlightPlan

Direct access

https://frisbeeplaybook.com/flightplan/newton/grade-6

Or navigate:
Frisbee Playbook → Build → Adventures with Frisbee Rob → The Long Way Down → Grade 6

Keep the FlightPlan open on a phone, tablet, or computer during class, or select **Print** before teaching.

Standard and Quick Launch

Use **Standard** to view the complete two-session experience.

When only one short block is available, select **Quick Launch**.

For the Newton Adventures FlightPlans, Quick Launch contains the four activities from Session 1:

Get Curious → Model → Build → Think It Through

Quick Launch displays the activities intentionally selected as the essential short-block pathway.

It does not automatically shorten every activity.

How the Two Resources Work Together

FlightPlan = what students physically do.

Teacher Guide = what the teacher is looking for and why it matters.

The FlightPlan is required to deliver the physical portion of these lessons.

This Teacher Guide is designed to be used alongside the FlightPlan, not instead of it.

The public Adventures FlightPlan focuses primarily on lesson delivery.

Curriculum interpretation, decision-making analysis, assessment evidence, learner supports, misconceptions, reflection, and deeper questioning remain in this Teacher Guide.

How to Use This Guide

THE GUIDE IS A TOOL, NOT A SCRIPT

Before teaching, open the Grade 6 Adventures FlightPlan and review both sessions.

During class: use Frisbee Playbook to run the controlled and dynamic physical activities and use this Teacher Guide to interpret the decision making, adaptation, and curriculum evidence.

The FlightPlan contains the actual dynamic variables, such as:

- partner movement
- target changes
- visual or verbal cues
- space changes
- timing changes
- direction changes

This Guide intentionally does not reproduce those mechanics.

Session 1 should provide enough controlled repetition for students to understand the base movement pattern.

Without that base, dynamic adaptation can become random reaction.

Then introduce one meaningful change.

A dynamic condition does not need several simultaneous variables.

One well-designed cue requiring one clear movement decision is enough.

Session 2 continues the same curriculum through repeated cycles of:

notice → decide → adapt → evaluate

Use feedback to help students refine the process.

Do not judge adaptation solely by whether the frisbee was caught or reached a target.

A purposeful decision followed by imperfect execution can still demonstrate strong learning.

The goal of the second session is not to do more. It is to give students enough time to think, try, improve, and communicate what they understand.

Curriculum Alignment

Organizing Idea	**Movement Skill Development:** Developing physical literacy through movement and active living supports well-being across a lifespan.
Guiding Question	**In what ways can movement patterns function to improve performance?**
Learning Outcome	**Students adapt and apply movement patterns in controlled and dynamic physical activities.**
Assessment Focus	Gather formative evidence through students': • repeated movement patterns • controlled practice • responses to changing conditions • use of feedback • movement decisions • adaptations • explanations Look for students who: • perform a recognizable movement pattern • use repeated practice in controlled conditions • recognize when conditions change • identify the cue or information that changed • make an immediate movement decision • adapt the pattern while preserving its purpose • use feedback • connect adaptation with accuracy, speed, or proficiency • respond appropriately to physical, verbal, or visual stimuli when used in the FlightPlan Session 1 provides sufficient selected KUSP evidence. Session 2 provides additional dynamic practice and refinement. These lessons do not assess the complete Learning Outcome.

Selected KUSP for These Lessons

KUSP element	Selected curriculum learning	What it looks or sounds like
Knowledge	**Selected Curriculum Learning** Similar patterns exist across a variety of physical activities. Feedback can be used to improve movement patterns when performing movement skills. Movement patterns can be expanded	Students distinguish between practising a movement pattern under predictable conditions and applying that pattern when information in the environment changes. They begin recognizing that: • visual cues can prompt movement

KUSP element	Selected curriculum learning	What it looks or sounds like
	to include new and novel physical activity skills. Controlled physical activities can be activities that are structured, individual, or partnered. Dynamic physical activities are limited in structure yet fluid and changing. Patterns are movements that enable the body to move in response to a stimulus.	• verbal cues can prompt movement • physical changes in the environment can prompt movement • feedback can influence later adaptations Students may say: • "In the first version, I knew where my partner would be." • "When the partner moved, I had to change direction." • "The cue told me where to move." • "I had to decide sooner."
Understanding	**Selected Curriculum Learning** Patterns are essential to the development of specialized movement skills in a variety of physical activities. Patterns can be transferred across a variety of physical activities for individual or group success. Controlled physical activities allow for repeated practice of movement skills. Dynamic physical activities require immediate decision making and refinement of movement skills. Controlled and dynamic physical activities can support movement skill patterns in a variety of physical activities. Movement combinations, patterns, and sequences can be adapted using creativity.	Students understand that controlled practice can help develop a stable, recognizable movement pattern. They also understand that dynamic application requires the mover to notice changing information, make a decision, adapt the pattern, and evaluate the result. Students begin distinguishing adaptation from abandoning the movement purpose. They may explain: • "I kept the same move–turn–throw pattern, but I changed the timing." • "I changed direction because my partner moved." • "The pattern stayed the same, but I used it differently." Students recognize that movement flexibility does not mean randomness.
Skills & Procedures	**Selected Curriculum Learning** Demonstrate how movement patterns are applied across various physical activities. Identify ways movement patterns experienced through physical activities can support skill development. Adapt movement patterns based on feedback.	Students perform a familiar frisbee movement pattern under controlled conditions. They then respond to a changing condition or cue. They identify the change, select a movement response, adapt the pattern, preserve the physical purpose, and reflect on the outcome. Students may adapt:

KUSP element	Selected curriculum learning	What it looks or sounds like
	Adapt movement patterns to improve accuracy, speed, and proficiency in a variety of controlled and dynamic physical activities. Implement movement patterns in response to a variety of physical, verbal, visual, and musical stimuli.	• direction • speed • timing • body position • spacing • receiving position • another FlightPlan-relevant feature They can explain why the adaptation made sense in response to the changing situation.

Curriculum source: Government of Alberta, Physical Education and Wellness (K–6) Curriculum, Movement Skill Development, pp. 40–41. [View the Alberta program of study]

Teacher Preparation

STANDARD PATHWAY

Use these sessions after students have heard Adventure 001.

Before teaching, open the Grade 6 Adventures FlightPlan:
https://frisbeeplaybook.com/flightplan/newton/grade-6

Review both sessions and the relevant Drill details.

Session 1 — Controlled to Changing

Students establish a movement pattern under predictable conditions and then respond to one changing variable.

The instructional progression is:

controlled repetition → identify the change → make a decision → adapt

Session 2 — Adapt in Real Time

Students apply feedback, respond to changing stimuli, refine movement decisions, and communicate adaptations.

The instructional progression is:

NOTICE → DECIDE → ADAPT → EVALUATE

If only one 30-minute period is available, teach Session 1 or use Quick Launch.

If a continuous 60-minute block is available, teach both sessions with a brief transition.

Flexible Use of the Guide

Core Pathway | 30 minutes

Open the Grade 6 Adventures FlightPlan and teach Session 1:

Get Curious → Model → Build → Think It Through

The FlightPlan provides the controlled and dynamic physical experience.

This Teacher Guide provides the curriculum, decision-making, questioning, observation, and assessment lens.

Session 1 independently provides sufficient opportunities to gather selected KUSP evidence.

Full Wonder Lab | 2 × 30 minutes

Teach both sessions through the companion FlightPlan:

Model → Build → Rehearse → Share

Session 2 deepens adaptation and decision making rather than simply increasing physical difficulty.

The learning progression remains:

controlled repetition → notice → decide → adapt → evaluate

Students also deepen Adventure-based inquiry through:

Puddle → Pond → Lake → Ocean

Continuous Block | ~60 minutes

Teach both sessions consecutively with a brief transition.

Reconnect may be shortened when Session 1 remains fresh.

Protect the progression:

controlled repetition

→ **recognize change**

→ **make decision**

→ **adapt**

→ **evaluate**

Do not turn the continuous block into a longer game simply because more time is available.

A longer activity is not automatically a deeper Grade 6 learning experience.

Protect time for controlled repetition, decision making, adaptation, reflection, and communication.

Materials

Required

Companion Grade 6 Adventures FlightPlan in Frisbee Playbook

Adventure 001

The FlightPlan identifies the frisbees, markers, partner positions, target areas, physical cues, setup, equipment, grouping, and dynamic task conditions.

Optional Teacher Guide Supports

Concept cards:

- CONTROLLED
- DYNAMIC
- NOTICE
- DECIDE
- ADAPT
- EVALUATE
- Optional visual or verbal cue cards
- Optional feedback prompts
- These are instructional supports.

They are not additional FlightPlan activities.

Before Students Begin

Open the Grade 6 FlightPlan.

Review:

- Session 1 and Session 2
- Standard and Quick Launch
- **Read and Adapt** Drill details
- **Movement Detective** Drill details
- the base movement pattern
- the controlled practice condition
- the changing condition or stimulus
- activity timing
- equipment
- partner organization
- educator notes
- coaching cues
- Use professional judgment to choose the Session 2 grouping—partners, groups of three, or whole group—that best supports student participation. Early in the year, whole-group practice may help students establish the routine, build confidence, and understand what successful participation looks and sounds like.
- activity-specific modifications

Identify clearly:

- **the base movement pattern**
- **what makes the first condition controlled**
- **what changes when the task becomes dynamic**
- **what information students need to notice**
- **what movement decisions students could reasonably make**
- **what the intended movement purpose remains**

Prepare the recurring prompt:

What changed in the situation, and what did you change in response?

Also prepare:

What stayed the same in the movement pattern?

That second question is important.

It prevents students from interpreting adaptation as:

> *"Everything changes."*

Do not introduce several unpredictable variables simultaneously.

Students should be able to identify what changed.

Useful Vocabulary

Pre-teach essential vocabulary through an explicit vocabulary routine, providing students with opportunities to build meaning, interact with the words, and use them in context before and throughout the lesson.

Physical Education & Wellness Words

movement pattern • controlled • dynamic • adapt • feedback • decision making • accuracy • speed • proficiency • refine • stimulus • response • transfer

Story Words

Rob • Newton • frisbee • Adventure • movement • question

A **controlled physical activity** provides structured or predictable conditions that allow repeated practice.

A **dynamic physical activity** is fluid and changing.

To adapt means to modify a movement pattern in response to need or context.

Decision making means selecting a movement response from possible options.

To refine means to make a movement increasingly effective.

A **stimulus** is information or a cue that can prompt a movement response.

A **response** is the movement action taken after noticing the stimulus.

Proficiency describes increasingly capable and effective movement.

Transfer means applying relevant movement learning in another physical activity or context.

Supporting Our Diverse Learners

Make It Accessible	Use the FlightPlan's activity modifications as the primary source for adapting the live physical experience. Begin with highly predictable controlled practice. Introduce one changing condition at a time. Make visual or verbal cues clear before reducing predictability. Increase the time between stimulus and response when needed. Reduce physical speed or distance when dynamic demands overwhelm object control. Preserve the requirement to: **notice the change and respond purposefully**
Support Language	Use frames such as: • "The situation changed when ______." • "I noticed ______." • "I decided to ______." • "I adapted by ______." • "The adjustment affected ______." • "I kept ______ the same." • "The cue told me ______." • "Next time I would ______." Students may physically demonstrate the adaptation before explaining it verbally.
Offer Response Choices	Accept: physical demonstration, oral explanation, tactical diagram, cue cards, written reflection, gesture, AAC, partner-supported explanation, and teacher-recorded response. Students may identify the cue or adaptation nonverbally when that provides clearer evidence of understanding.
Support Participation	Meaningful roles may include mover, cue giver, observer, adaptation detective, feedback partner, pattern checker, and reporter. Use Frisbee Playbook as the primary source for physical grouping and organization.
Reduce Memory Load	Keep the base movement pattern visible when helpful. Use one stimulus at a time during early dynamic practice. Display: **NOTICE → DECIDE → ADAPT → EVALUATE** when useful. Avoid asking students to monitor several changing variables simultaneously before the decision process is established.
Support Rehearsal	Allow enough controlled repetition for the pattern to become familiar.

	Then rehearse one predictable adaptation before making the cue less predictable. For example: • first practise responding to a known change • then allow the same type of change to occur with less advance notice The goal is not surprise for its own sake. The goal is purposeful response.
Preserve the Learning	Reduce: speed, complexity, movement distance, object-control demand, and cue frequency. Do not remove the requirement to recognize a changed condition, make a decision, and adapt purposefully. **Change the access pathway—not the learning goal.**

KUSP Assessment: Evidence to Notice

FORMATIVE ASSESSMENT

Gather evidence naturally while students complete the Grade 6 FlightPlan.

Do not assess only whether the frisbee reached the intended destination.

Session 1 provides sufficient selected KUSP evidence opportunities.

Session 2 adds dynamic decision making, feedback use, refinement, and explanation.

Evidence source	Listen or look for	Possible teacher note
Observation	Student performs the base movement pattern consistently enough to recognize it. Student notices the changing cue. Student responds to the cue. Student modifies direction, speed, timing, position, spacing, or another relevant movement feature. Student preserves the movement purpose. Student refines the response across attempts. Student uses feedback in later adaptations.	"Changes direction and receiving position when partner shifts while preserving the base movement pattern." Or: "Responds to the visual cue by adjusting timing rather than abandoning the pattern." Or: • "After feedback, uses a smaller movement adjustment on the next dynamic attempt."
Conversation	Student explains what changed. Student identifies the information that prompted the decision. Student explains what stayed the	"Says, 'The partner moved, so I changed direction before sending, but I kept the same basic pattern.'" Or: • "Says, 'I reacted too early the first

Evidence source	Listen or look for	Possible teacher note
	same. Student connects the adaptation with the movement outcome. Student evaluates whether the adjustment helped.	time, so on the next one I waited for the cue.'"
Product / Class Product	• An optional **Situation Changed / I Adapted** board can provide supporting evidence. • Students may record: the stimulus, the decision, the movement adaptation, what stayed the same, and the observed result. • Students may contribute through: words, diagrams, movement cards, teacher-recorded comments, and physical demonstrations. • Physical performance remains central evidence.	

The Two-Session Flow

Session 1 — Controlled to Changing | 30 minutes

Time	Section	Student experience	Teacher move
~5 min	**Get Curious**	Complete **Get Curious** in the Grade 6 Adventures FlightPlan. Students reconnect with Rob's familiar frisbee actions and consider whether every physical situation unfolds predictably.	Create a reason for adapting a known movement pattern. Introduce: CONTROLLED and DYNAMIC and Use the FlightPlan for the physical directions. Use this Teacher Guide to establish the decision-making lens.
~5 min	**Wonder Lab: Model**	**FlightPlan activity: Read and Adapt** Observe a controlled version of the movement pattern and then the same movement purpose under one changed condition.	Make visible: • what stayed the same • what changed in the environment • what required a decision • what the mover adapted Do not make the dynamic version unnecessarily complicated.

Time	Section	Student experience	Teacher move
~15 min	**Wonder Lab: Build**	**FlightPlan activity: Read and Adapt** Complete the Build experience. Students first practise the base pattern under controlled conditions. They then respond to a clearly defined changing condition.	Watch for purposeful decisions rather than random reaction. Ask: • What changed? • What did you notice? • What did you decide? • What did you adapt? • What stayed the same? If the base movement pattern becomes unstable, briefly return to controlled practice.
~5 min	**Think It Through**	Distinguish between controlled and dynamic activity and explain why adaptation was necessary.	Connect repeated controlled practice with dynamic decision making. Return to the central question.

Session 2 — Adapt in Real Time | 30 minutes

Time	Section	Student experience	Teacher move
~5 min	**Reconnect**	Complete **Reconnect** in the Grade 6 FlightPlan. Students recall the familiar base pattern and the difference between controlled and dynamic conditions.	Ensure the base pattern remains sufficiently familiar before adding change. Reactivate: **NOTICE → DECIDE → ADAPT → EVALUATE**
~8 min	**Wonder Lab: Rehearse**	**FlightPlan activity: Read and Adapt** Repeat the controlled pattern, apply one feedback point, then respond to the changing cue.	Rehearse the decision process as much as the physical pattern. Ask: • What did you notice? • What did you decide? • What did you adapt? • What happened? • What would you refine?
~9 min	**Wonder Lab: Share**	**FlightPlan activity: Movement Detective** Students demonstrate the same movement purpose under controlled and changing conditions. Movement Detectives observe	Ask observers to identify: • the base pattern • the changing condition • the adaptation • what remained constant • the effect of the movement

Time	Section	Student experience	Teacher move
		the differences.	decision Share should make decision making visible rather than reward the most athletic performance.
~3 min	**Think It Through**	Explain how controlled practice and dynamic adaptation work together.	Return to the central question. Ask how feedback and repeated practice helped students make movement decisions.
~5 min	**Keep Wondering**	Complete the FlightPlan Keep Wondering transition, then use the Puddle–Pond–Lake–Ocean prompts in this Teacher Guide.	Keep questions anchored in: Rob's movement, changing conditions, decision making, adaptation, and pattern preservation. Do not shift the inquiry into unrelated tactics or advanced frisbee physics.

Session 1 — Controlled to Changing

Get Curious | ~5 minutes

Open the Grade 6 Adventures FlightPlan and run Get Curious.

Use the FlightPlan for the physical directions.

Return to a frisbee moment from the Adventure.

Ask:

- **"If Rob knows how to throw and receive a frisbee, does that mean every situation will happen exactly the same way?"**
- Invite examples of what could change: partner location, frisbee location, available space, direction, timing, and speed.

Ask:

- **"If something changes, should Rob forget everything he knows and start over?"**
- Introduce: CONTROLLED and DYNAMIC.

Explain:

Controlled practice helps develop and repeat a familiar pattern.

Dynamic situations require immediate decisions because some conditions are changing.

Introduce the challenge:

How can we adapt a movement pattern when the frisbee situation changes?

FACILITATION PROMPTS

- What can you predict?
- What might change?
- What part of the movement pattern could stay the same?
- What part might need to adapt?
- What information would you need to notice?
- What decision might you make?
- Could more than one decision be reasonable?

TEACHER MOVE

Establish adaptation as **purposeful decision making**.

Do not frame Grade 6 simply as reacting faster.

Students need to notice meaningful information before they can make a purposeful movement decision.

2. Wonder Lab

Model | ~5 minutes

Open the FlightPlan and run Read and Adapt — Model.

Use Frisbee Playbook for the physical task, setup, cue, timing, and coaching information.

First observe the movement pattern under the controlled condition.

Ask:

- “What was predictable?”
- Then observe the same movement purpose after the FlightPlan introduces the changing condition.

Ask:

- “What changed in the situation?”
- “What did the mover change?”
- “What stayed recognizable?”
- “Was the movement purpose still the same?”

FACILITATION PROMPTS

- Was the first activity controlled or dynamic?
- What information changed?
- What required a decision?
- Which part of the pattern adapted?
- What stayed the same?
- Could another adaptation have worked?
- Did the mover react randomly or respond to information?

TEACHER MOVE

Make visible that adaptation can **preserve the underlying movement pattern while changing its application**.

Do not imply that there is always only one correct response.

Build | ~15 minutes

Open the FlightPlan and run Read and Adapt — Build.

Use Frisbee Playbook for:

- activity instructions
- base movement pattern
- partner organization
- controlled condition
- changing cue
- equipment
- spacing
- timing
- repetitions
- coaching cues
- activity-specific modifications

Use this Guide as the decision-making and assessment lens.

Begin with controlled repetition.

Ask:

- "What is your base pattern?"
- "Can you perform it consistently enough to recognize it?"

Then use the FlightPlan's changing condition.

Ask:

- "What changed?"
- "What information did you notice?"
- "What decision did you make?"
- "What did you adapt?"
- "Did the pattern still serve the same purpose?"

Students may adapt: direction, speed, timing, body position, spacing, receiving position, and another FlightPlan-relevant feature.

FACILITATION PROMPTS

- Did you notice the change early enough?
- What was your first movement decision?
- Did you change more than you needed to?
- Could a smaller adjustment work?
- What feedback are you using?
- What happened to accuracy?

- What happened to speed?
- What happened to proficiency?
- What remained recognizable from the base pattern?
- Could another response also have worked?

TEACHER MOVE

Students need enough controlled practice to recognize **what they are adapting**.

If the base pattern becomes unstable, return briefly to controlled conditions.

Dynamic practice without a recognizable base pattern can become random movement rather than curriculum evidence.

Think It Through | ~5 minutes

Run Think It Through from the FlightPlan, then deepen the reflection using the prompts below as appropriate.

Ask:

- “What makes an activity controlled?”
- “What makes an activity dynamic?”
- “Why does controlled practice matter?”
- “What changed in the dynamic condition?”
- “What kind of decision did the change require?”
- “What part of your movement pattern stayed the same?”
- “What part did you adapt?”
- “How did adaptation support performance?”
- “Could another adaptation also have worked?”

Return to:

How can we adapt a movement pattern when the frisbee situation changes?

Sample Response Guidance

Possible response:
“In the controlled version, I knew where my partner would be.”
“When my partner moved, I changed direction.”
“I kept the same pattern but changed the timing.”
“I noticed the cue and moved earlier.”
“The first adjustment was too big, so I made a smaller change.”
“I changed position, but the movement purpose stayed the same.”
“I knew what to adapt because I had practised the base pattern first.”

Possible response:

Look for:

- **pattern preservation + purposeful adaptation**
- rather than perfect execution.

Session 1 Closing

Tell students:

- "Controlled practice helps us build and understand a movement pattern."
- "Dynamic situations can change."
- "Strong movers notice the change, make a decision, and adapt."
- "Adapting does not mean forgetting everything we already know."
- "Next time, we'll practise making those decisions more deliberately."

If Session 1 is taught alone, ask:

> ***"Tell me one thing you kept the same and one thing you adapted when the situation changed."***

Session 2 — Adapt in Real Time

Reconnect | ~5 minutes

Open the Grade 6 FlightPlan and run Reconnect.

Display or say: CONTROLLED and DYNAMIC.

Ask students to identify one difference.

Reconstruct the familiar base movement pattern physically.

Ask:

> ***"What parts of this pattern should feel familiar before conditions change?"***

Then display:

NOTICE → DECIDE → ADAPT → EVALUATE

Ask students what each step means.

TEACHER MOVE

Reconnect the **thinking process**, not only the activity rules.

Students should understand that adaptation begins with noticing relevant information.

2. Wonder Lab

Rehearse | ~8 minutes

Open the FlightPlan and run Read and Adapt — Rehearse.

Begin with controlled repetition.

Provide one focused feedback cue.

Then introduce the changing stimulus from the FlightPlan.

Prompt:

- “What did you notice?”
- “What did you decide?”
- “What did you adapt?”
- “What happened?”
- Repeat.

FACILITATION PROMPTS

- What feedback are you using?
- What is the base pattern?
- What stimulus changed?
- What decision did you make?
- Did you adapt direction, speed, timing, or position?
- Would you make the same decision next time?
- What could you refine?
- Did you change more than necessary?
- Did the adaptation preserve the movement purpose?

TEACHER MOVE

Rehearse the **decision process**, not only the physical pattern.

If students respond too quickly without identifying the cue, ask:

“What information were you supposed to notice first?”

A fast reaction is not automatically an effective decision.

Share | ~9 minutes

Open the FlightPlan and run Movement Detective — Share.

Students demonstrate the same movement purpose under two conditions: a controlled condition and a changing condition and Movement Detectives observe.

Ask them to identify: the base pattern, the changing condition, the adaptation, and what remained constant.

Ask:

- “Why was adaptation necessary?”
- “Could another movement decision have worked?”

FACILITATION PROMPTS

- What stayed constant?
- What changed in the environment?
- What changed in the movement?
- Was the movement purpose preserved?

- Did the adaptation affect accuracy, speed, or proficiency?
- Could another performer reasonably make a different decision?
- What evidence shows that the adaptation was purposeful?

TEACHER MOVE

Share should make **decision making visible**.

Do not reward only the fastest, farthest, or most athletic response.

A student who clearly identifies:

cue → decision → adaptation

may demonstrate stronger Grade 6 understanding than someone who completes the task successfully by accident.

Think It Through | ~3 minutes

Run Think It Through from the FlightPlan.

Ask:

- “How does controlled practice prepare us for dynamic activity?”
- “What helps us adapt effectively?”
- “How can feedback support movement decisions?”
- “Why is adaptation different from random reaction?”
- “What helps you decide what to change and what to preserve?”

Return to the central question.

Keep Wondering | ~5 minutes

The FlightPlan transitions students into Keep Wondering.

Use the questions below to deepen the inquiry.

PUDDLE

- What movement pattern does Rob use?
- What could change around Rob?
- Does Rob always need to stand in the same place?
- What movement might Rob need to repeat before adapting it?

POND

- How might Rob adjust if the frisbee arrives somewhere unexpected?
- Why might Rob change direction but keep the same basic movement pattern?
- How could feedback help Rob adapt?
- What might Rob need to notice before making a movement decision?

LAKE

- How would Rob’s movement pattern differ in controlled practice compared with a changing frisbee situation?
- Which parts of a movement pattern might be easiest to adapt quickly?
- How could previous practice help Rob make a faster movement decision?
- How might Rob know whether to change timing, direction, or position?

OCEAN

- How might a skilled mover decide what to change and what to preserve when a situation changes quickly?
- Why might two performers choose different successful adaptations in the same situation?
- How can a movement pattern become flexible without becoming random?
- Why might someone with more experience appear to adapt faster even when they are using the same basic movement pattern?

Invite Student Questions

Ask:

> ***"What are you still wondering about how Rob might adapt his movement when a frisbee situation changes?"***

FACILITATION PROMPTS

- What changed in the situation?
- What part of the pattern could remain?
- What decision would Rob need to make?
- What information would Rob need to notice?
- What part of the Adventure made you wonder?
- Could more than one adaptation work?
- How would Rob know whether the change helped?
- Can we deepen the question by connecting the stimulus, decision, and movement response?
- Could a similar movement decision appear in another physical activity?

TEACHER MOVE

A deeper question does not need to move into another subject or introduce information students have not encountered.

Depth comes from:

noticing

connecting

interpreting

comparing

evaluating

wondering more deeply about the movement situation

Keep questions anchored in **Rob's movement and decision making** rather than shifting into unrelated tactics or frisbee physics.

If students move toward disc-flight questions, redirect:

"What movement decision would Rob make because of that situation?"

Close with one student-generated question worth preserving.

Likely Misconceptions and Helpful Responses

- **If students abandon the entire pattern when conditions change**

Try:

- **“What part could stay the same?”**
- **If students react before noticing the cue**

Try:

- **“What information are you supposed to notice first?”**
- **If students think faster always means better**

Try:

- **“Did the extra speed improve accuracy or proficiency?”**
- **If students change too many things at once**

Try:

- **“What is the smallest useful adjustment?”**
- **If feedback becomes generic**

Try:

- **“Which part of the movement pattern does that feedback address?”**
- **If students treat controlled practice as unimportant because it feels easier**

Try:

- **“What does repeated controlled practice allow you to develop before conditions change?”**
- **If students judge adaptation only by whether the frisbee was caught**

Try:

- **“What decision did you make, and was it appropriate for the information you had?”**
- **If students think there is only one correct adaptation**

Try:

- **“Could another movement decision also preserve the same purpose?”**
- **If students confuse adaptation with completely changing the task**

Try:

> ***“What was the original movement purpose, and did you preserve it?”***

If students...	Try this teacher response
If students think dynamic means chaotic	Try: • **“Dynamic means the conditions are fluid or changing. Can you still identify the movement purpose?”**

Use the Evidence Next

If a student cannot maintain the base pattern

Return to controlled practice.

Do not increase dynamic demand yet.

If a student recognizes the change but reacts inconsistently

Slow or simplify the cue.

Increase the time between stimulus and response.

If a student adapts physically but cannot explain why

Ask:

- **“What information triggered your decision?”**
- **If a student makes effective adaptations consistently**

Vary one additional condition in future practice.

Do not add several variables at once.

If a student uses feedback effectively

Ask whether the adjustment improved:

- accuracy
- speed
- proficiency
- or another relevant movement outcome
- **If dynamic demands overwhelm frisbee control**

Use the FlightPlan modifications to simplify the object-manipulation requirement while preserving the decision-making demand.

If a student identifies multiple reasonable adaptations

Ask:

- **“What might be the advantage of each choice?”**
- **If a student responds quickly but cannot identify the cue**

Return attention to:

- **NOTICE**
- before emphasizing speed.

If a student makes a good decision but execution is imperfect

Document the purposeful adaptation.

Do not erase the movement reasoning because of the final frisbee result.

If a student generates mainly Puddle questions

Ask:

> ***“What would happen if the situation became less predictable?”***

Optional Physical Education & Wellness Extensions

These extensions are optional.

They do not replace the core Grade 6 Adventures FlightPlan.

Controlled vs. Dynamic

Students perform the same familiar movement pattern under: one predictable condition and one changing condition.

Ask:

- “What could you predict in the first version?”
- “What changed in the second?”
- “What decisions did the changing condition require that the controlled version did not?”
- “What part of the movement pattern remained the same?”
- **Adaptation Call**

Use one clear visual or verbal cue requiring an immediate change in:

- direction
- position
- timing
- or another relevant movement element

Students identify: the cue, the decision, and the adaptation.

Ask:

- “What did you notice first?”
- “What did you change?”
- “Was the movement purpose preserved?”
- “Could another adaptation also work?”

Keep the cue simple enough that the decision remains visible.

Pattern Transfer

Identify a similar movement pattern in another familiar physical activity.

Ask:

- “What part of the pattern could transfer?”
- “What would need to adapt because the activity is different?”
- “What information would the mover need to notice?”
- “How might the dynamic conditions differ?”

The purpose is to help students recognize transfer while understanding that the movement context may require adaptation.

What Would Rob Do Next?

Return to a frisbee moment from the Adventure.

Change one feature of the situation.

For example:

- the partner moves
- the available space changes
- the frisbee arrives somewhere unexpected
- the required timing changes

Ask:

- "What changed?"
- "What would Rob need to notice?"
- "What should remain from his familiar movement pattern?"
- "What decision might he make?"
- "How could he adapt?"
- "How would he know whether the adaptation helped?"

Encourage more than one reasonable answer when the movement evidence supports it.

Keep the inquiry focused on Rob's movement and decision making rather than unrelated tactics or frisbee physics.

Every adventure begins with a question.
Keep wondering.

THE ADVENTURES WITH FRISBEE ROB

The Long Way Down

Adventure 001: Isaac Newton

GRADE 6

SCIENCE

Teacher Guide

Force Detectives: What Changes During an Interaction?

GRADE	SUBJECT	TIME
Grade 6	Science	2 × 30 minutes

CENTRAL QUESTION

How can external and internal forces during an interaction change an object’s position or shape?

Wonder in Motion

Lesson at a Glance

Story connection	Rob's frisbee journey begins with an interaction between Rob and the frisbee. Later, the frisbee encounters other interactions involving air, hands, and surfaces. Grade 6 students use the opening interaction as a bridge into a broader Science idea: external and internal forces can be related to physical changes in objects during interactions.
Science focus	Interactions, external forces, applied force, friction, internal forces, compression, torsion, changes in position and shape, investigation, evidence, and constructing clear force-interaction explanations.
Learning intention	We are learning to identify selected external and internal forces during interactions and explain how those interactions can change an object's position or shape.
Core experience	Across two 30-minute sessions, students investigate three controlled interactions: an applied force changing the position of a disc, friction influencing sliding movement, and an external action creating compression or torsion in a flexible object. They collaboratively build an Interaction Evidence Board, rehearse interaction chains, and share explanations grounded in evidence.
Flexible use	Session 1 is a complete core lesson and can be used independently. Session 2 continues the same Wonder Lab by giving students additional time to investigate, rehearse, explain, share, and deepen their scientific thinking. Teachers with a continuous 60-minute block may teach both sessions together.
Use after reading	Read Adventure 001: The Long Way Down before beginning. The story reading is separate from the two Science sessions.
Story context	Isaac Newton was a real historical person. Rob's visit, their conversation, and the events they experience together are imaginative parts of the story.
Important scientific distinction	The classroom investigations use selected interactions that make particular Grade 6 force concepts observable. They do **not** attempt to identify every force acting on Rob's frisbee during actual flight. The story supplies a reason to think about interactions. The scientific evidence comes from the controlled classroom investigations.

Optional Teacher-Spoken Success Indicators

I can identify an external force during an interaction.

I can explain how friction can affect movement.

I can identify compression or torsion in an appropriate example.

I can connect a force with an observable change in position or shape.

How to Use This Guide

THE GUIDE IS A TOOL, NOT A SCRIPT

This guide is designed to support responsive teaching rather than prescribe every word or action.

Session 1 is a complete 30-minute Grade 6 Energy lesson and can be taught independently.

Session 2 continues the same learning through rehearsal, refinement, sharing, and questioning. It does not introduce additional curriculum.

Follow productive student thinking and conversation while protecting the central question, selected Energy KUSP, meaningful participation, and approximate lesson timing.

Adjust investigation materials, number of stations, grouping, response modes, and pacing to meet the needs of the learners in front of you.

Use a small number of clearly observable interactions rather than attempting to demonstrate every external and internal force named in the Grade 6 curriculum.

Require evidence for each force label. Students should not attach every available force word to every interaction.

The goal of the second session is not to do more.

It is to give students enough time to investigate, trace relationships, revise explanations, and communicate their scientific understanding.

Curriculum Alignment

Organizing Idea	Energy: Understandings of the physical world are deepened by investigating matter and energy.
Guiding Question	In what ways can interactions lead to physical change?
Learning Outcome	Students analyze forces and relate them to interactions between objects.
Assessment Focus	Gather formative evidence of selected Grade 6 Energy KUSP through students' identification of external and internal forces, investigation of selected interactions, and explanations of changes in position or shape. Session 1 provides sufficient opportunities to gather evidence of the selected KUSP. Session 2 offers additional opportunities for students to demonstrate and communicate their understanding. These lessons do not assess the complete learning outcome.

Selected KUSP for These Lessons

KUSP element	Selected curriculum learning	What it looks or sounds like
Knowledge	Forces within an object are internal forces, including tension compression shear torsion Forces that act on an object from outside the object are external forces, including applied force friction elastic or spring force External forces cause internal forces within an object. An applied force is exerted on an object by a person or another object. Friction forces oppose the movement of objects when those objects make contact with other objects or surfaces. Compression is a force exerted on an object that squeezes, squashes, or compacts the object. Torsion is a force that twists an object.	Students identify an applied force or friction as external in an appropriate interaction and identify compression or torsion as an internal force when the investigation materials provide evidence of squeezing or twisting.
Understanding	External and internal forces can change the shape, size, or position of objects that interact.	Students connect an identified force with an observable physical change and distinguish the interacting objects, force, and effect.
Skills & Procedures	Conduct investigations to answer questions about the effects of external and internal forces on objects during an interaction. Identify forces that act on an object during an interaction.	Students conduct controlled investigations, identify supported forces, record physical changes, compare interactions, and use evidence to explain the relationship among interaction, force, and effect.

Curriculum source: Government of Alberta, Science (K–6) Curriculum, Energy, p. 40. View the Alberta program of study

Teacher Preparation

STANDARD PATHWAY

Use these two 30-minute sessions after students have heard Adventure 001: The Long Way Down.

Session 1: Investigate the Interaction is the core lesson. Students reconnect with Rob's interaction with the frisbee, see an interaction-force-change chain modelled, and collaboratively investigate applied force, friction, and one or more internal-force examples.

Session 2: Trace the Forces continues the same Wonder Lab. Students return to the Interaction Evidence Board, rehearse a force-interaction explanation with a partner, refine the distinction between external force, internal force, and physical effect, share different interaction chains, and explore questions of different depths about forces and interactions in the Adventure.

If only one 30-minute period is available, teach Session 1.

If a continuous 60-minute block is available, the two sessions can be taught together with a brief transition or movement break between them.

Flexible Use of the Guide

Core Pathway | 30 minutes

Teach Session 1: Investigate the Interaction.

Students experience:

Get Curious → Model → Build → Think It Through

This is a complete Grade 6 Energy lesson and provides opportunities to gather formative evidence of the selected KUSP.

Full Wonder Lab | 2 × 30 minutes

Teach both sessions.

Students experience the complete Wonder Lab cycle:

Model → Build → Rehearse → Share

Session 2 deepens the same learning rather than adding additional curriculum.

It also provides time for students to reflect on and question the Science of the Adventure through:

Puddle → Pond → Lake → Ocean

Continuous Block | ~60 minutes

If scheduling allows, Sessions 1 and 2 may be taught consecutively.

Take a brief movement or transition break after the first Think It Through before beginning Reconnect.

Materials

A copy of Adventure 001: The Long Way Down

A frisbee, foam disc, puck, block, or other sliding object

Two surfaces with noticeably different textures

A sponge, foam block, modelling material, or other flexible object suitable for showing compression

A flexible strip or other suitable object for showing torsion

Whiteboard, chalkboard, or chart paper and marker

Interaction Evidence Board with:

- WHAT OBJECTS INTERACT?
- WHAT EXTERNAL FORCE CAN WE IDENTIFY?
- WHAT INTERNAL FORCE CAN WE IDENTIFY, IF RELEVANT?
- WHAT PHYSICAL CHANGE DO WE OBSERVE?
- WHAT IS OUR EVIDENCE?

Optional force cards:

applied force

friction

compression

torsion

Before Students Begin

Prepare three core interactions.

Interaction 1 — Applied force and position

Use a hand to push or slide the disc.

The clearest evidence is:

external applied force

change in position

Interaction 2 — Friction and movement

Move the same sliding object across two surfaces.

Keep the object and initial movement method as consistent as reasonably possible.

The intended comparison is the observable effect of different surface interactions.

Interaction 3 — Internal force and shape

Use a flexible material that can be clearly squeezed or twisted.

Choose compression, torsion, or both depending on the material.

Students do not need to identify an internal force in every interaction.

Prepare the Interaction Evidence Board.

- Use professional judgment to choose the Session 2 grouping—partners, groups of three, or whole group—that best supports student participation. Early in the year, whole-group practice may help students establish the routine, build confidence, and understand what successful participation looks and sounds like.

Keep the materials and completed board available for Session 2.

Substitutions

Use other flexible objects, alternative surfaces, teacher-controlled demonstrations, diagrams, photographs, or suitable digital simulations when the suggested materials are unavailable.

Students who do not manipulate materials can identify forces, record evidence, construct diagrams, compare interactions, or report conclusions.

Useful Vocabulary

Pre-teach essential vocabulary through an explicit vocabulary routine, providing students with opportunities to build meaning, interact with the words, and use them in context before and throughout the lesson.

Science words:

interaction • force • external • internal • applied force • friction • compression • torsion • position • shape • physical change • evidence

Story words:

frisbee • throw • hand • ground • movement • return • observe • Newton • question

An interaction occurs when objects affect one another.

An external force acts on an object from outside the object.

An internal force acts within an object.

An applied force is exerted on an object by a person or another object.

Friction opposes movement when objects make contact with other objects or surfaces.

Compression squeezes, squashes, or compacts an object.

Torsion twists an object.

A physical change in this lesson may include a change in position or shape.

Supporting Our Diverse Learners

Use these supports proactively while preparing and teaching the two sessions.

Make it accessible	Use interactions with obvious before-and-after conditions. Allow students to observe the same interaction repeatedly and physically handle materials where appropriate to their learning needs.
Support language	Model sentence frames such as: The interacting objects were ______. The external force was ______.

	The internal force was ______. The physical change was ______. Our evidence shows ______.
Offer response choices	Accept force-card placement, labelled diagrams, physical demonstration, oral explanation, written analysis, sequencing cards, communication devices, or assistive technology.
Support participation	Offer roles such as investigator, interaction observer, external-force identifier, internal-force identifier, before/after recorder, evidence checker, diagrammer, or science reporter.
Reduce memory load	Keep the relationship visible: Interaction → Force → Physical Change → Evidence Keep External and Internal as separate headings. Investigate one interaction fully before adding another.
Support rehearsal	Allow students to trace one interaction chain more than once before comparing it with another. Let students use the Interaction Evidence Board during explanations.
Preserve the learning	Change the materials, number of forces considered, physical role, recording demand, or response mode—not the scientific goal. Students still identify supported forces and relate them to observable physical changes during interactions.

KUSP Assessment: Evidence to Notice

FORMATIVE ASSESSMENT

Gather evidence through observations and conversations across both sessions.

Session 1 provides sufficient opportunities to gather evidence of the selected KUSP.

Session 2 gives students additional opportunities to demonstrate and communicate their understanding.

Evidence source	Listen or look for	Possible teacher note
Observation	Student identifies the interacting objects, notices a physical change, and selects a supported force.	“Identifies the hand applying an external force to the disc and records the resulting position change.”
Conversation	Student distinguishes external from internal force in a supported interaction and connects the force with an effect.	“Explains that the hands apply an external squeezing force and compression occurs within the foam.”

Evidence source	Listen or look for	Possible teacher note
Product	Contribution to the Interaction Evidence Board accurately connects interaction, force, physical change, and evidence.	“Records disc + rough surface → friction → sliding movement reduced more quickly.”

The Two-Session Flow

Session 1 — Investigate the Interaction | 30 minutes

Time	Section	Student experience	Teacher move
~5 min	**Get Curious**	Reconnect with Rob’s hand interacting with the frisbee and identify the change that follows.	Create a need to analyze the interaction rather than simply name a force.
~5 min	**Wonder Lab: Model**	Observe applied force changing the position of an object and build the first interaction chain.	Make interacting objects, force, physical change, and evidence explicit.
~15 min	**Wonder Lab: Build**	Collaboratively investigate friction and internal-force interactions and build the Interaction Evidence Board.	Require evidence before accepting a force label.
~5 min	**Think It Through**	Explain how different interactions can produce different forces and physical changes.	Connect the investigations to the relationship between external/internal forces and physical change.

Session 2 — Trace the Forces | 30 minutes

Time	Section	Student experience	Teacher move
~5 min	**Reconnect**	Revisit interaction chains and reconstruct missing force or effect information.	Ask students to reason from the interaction and evidence rather than vocabulary recall.
~8 min	**Wonder Lab: Rehearse**	Work with a partner to build and improve one complete interaction explanation.	Prompt students to distinguish interacting objects, external force, internal force where relevant, and physical change.
~9 min	**Wonder Lab: Share**	Present and compare movement-change and shape-change interactions.	Focus audience attention on evidence and the different roles of forces.

Time	Section	Student experience	Teacher move
~3 min	**Think It Through**	Reflect on why identifying the interaction helps scientists understand the force.	Return to the central question.
~5 min	**Keep Wondering**	Generate and explore questions of different depths about forces and interactions in the Adventure.	Use Puddle–Pond–Lake–Ocean language to deepen story-based scientific wondering.

Session 1 — Investigate the Interaction

Get Curious | ~5 minutes

Reconnect students to the beginning of Rob's frisbee journey.

Ask:

> *"What two things interact before the frisbee begins moving?"*

Students may identify:

Rob's hand

the frisbee

Ask:

- "What changes after that interaction?"
- The frisbee's position changes.
- Its movement changes.

Introduce the Grade 6 question:

> *"When objects interact, what forces can be involved, and what physical changes can those forces produce?"*

Display or write:

INTERACTION

FORCE

PHYSICAL CHANGE

EVIDENCE

Tell students:

> *"Today we are going to become Force Detectives. We will trace each interaction from what touches or affects what, to the force we can identify, to the physical change we observe."*

TEACHER MOVE

Move from the story into controlled classroom evidence.

Do not ask students to identify every force acting during real frisbee flight from the story alone.

2. Wonder Lab

Model | ~5 minutes

Place the disc at rest.

Push it with your hand.

Ask:

- "What two objects interacted?"
- Hand and disc.

Ask:

- "Where did the force come from?"
- From outside the disc.

Introduce or reinforce:

> *"An applied force is exerted on an object by a person or another object."*

Identify it as external.

Ask:

- "What physical change did we observe?"
- The disc changed position.

Build the interaction chain:

Hand + disc

→ external applied force

→ position changes

→ evidence: the disc moves from its starting position

Think aloud:

> *"I am not just naming a force."*
>
> *"I am showing which objects interacted, what force the evidence supports, and what changed."*

FACILITATION PROMPTS

- What objects interacted?
- Where did the force come from?
- Was it acting from outside or within the object?
- What physical change occurred?
- What evidence did we observe?
- Could we name the force without knowing the interaction?
- Which part is the force?

- Which part is the effect?

TEACHER MOVE

Begin with the clearest external-force example.

The Interaction Board should establish a reasoning structure students can reuse.

Build | ~15 minutes

Conduct Investigation A: Friction.

Slide the selected object across Surface 1.

Observe.

Repeat across Surface 2 using as similar a starting condition as reasonably possible.

Ask:

- What objects are interacting?
- What external force opposes movement when surfaces are in contact?

Introduce or reinforce friction.

Record the observed differences.

Ask students not to say one surface has “more friction” unless the classroom evidence supports that comparative interpretation.

Conduct Investigation B: Compression.

Take the sponge or foam object.

Ask students to describe its shape before the interaction.

Squeeze it.

Ask:

- What is interacting with the object?
- What external action is being applied?
- What happens within the flexible material?

Introduce compression as the internal force that squeezes, squashes, or compacts the object.

Record the shape change.

If time and materials permit, conduct Investigation C: Torsion.

Twist the flexible strip.

Ask:

- How is this interaction different from squeezing?
- What internal force describes twisting?

Record torsion.

Compare the three interaction chains.

FACILITATION PROMPTS

- What objects are interacting in this trial?
- Which force acts from outside?
- What does friction oppose?
- What physical change can we observe?
- How did the two surface trials differ?
- What evidence supports our friction statement?
- What happens to the foam when it is squeezed?
- Which force describes that internal squeezing?
- What happens when the material is twisted?
- Is that compression or torsion?
- Do we need to identify an internal force in every interaction?
- Which force label does the evidence actually support?

TEACHER MOVE

Repeatedly require the interaction and evidence before accepting a force term.

Students should not collect vocabulary words and attach them indiscriminately to every station.

Think It Through | ~5 minutes

Step back from the Interaction Evidence Board.

Ask:

- What is an interaction?
- What makes a force external?
- What makes a force internal?
- How did an applied force change the disc's position?
- How did friction affect our sliding interaction?
- How did compression change the flexible object?
- How was torsion different from compression?
- Can different interactions produce different kinds of physical change?
- Why is it useful to identify the interacting objects before naming the force?

Return to the central question:

How can external and internal forces during an interaction change an object's position or shape?

Sample Response Guidance

Possible response:
"The hand applied an external force and the disc changed position."
"Friction opposed the disc's movement when it contacted the surface."
"When we squeezed the foam, compression changed its shape."
"Torsion twists an object instead of squeezing it."

Possible response:

- "We need to know what is interacting so we can explain where the force comes from."
- Look for connected reasoning rather than isolated vocabulary recall.

Session 1 Closing

Tell students:

> *"Rob's frisbee journey begins with an interaction between his hand and the frisbee."*
>
> *"Today Grade 6 Science helped us look much more closely at interactions. We traced interacting objects, forces, and physical changes."*
>
> *"Next time, you will choose one interaction and explain the complete chain using evidence."*

If Session 1 is the only lesson being taught, finish by asking:

> *"What is one interaction from today that you can explain from beginning to physical change?"*

Session 2 — Trace the Forces

Reconnect | ~5 minutes

Display several incomplete interaction chains.

Example:

Hand + disc
→ ______
→ position changes

Disc + rough surface
→ friction
→ ______

Hands + foam
→ external squeezing
→ ______
→ shape changes

Ask students to complete the missing information.

Then ask:

- "How did you know what belonged in the blank?"
- "What evidence from yesterday helped?"

TEACHER MOVE

Use the incomplete chains to reactivate relationships.

Do not turn Reconnect into a definition-matching quiz.

2. Wonder Lab

Rehearse | ~8 minutes

Students work with partners.

Each pair chooses one interaction.

Partner A explains:

> *“The interacting objects were...”*
>
> *“The external force was...”*
>
> *“If an internal force was relevant, it was...”*
>
> *“The physical change was...”*
>
> *“Our evidence was...”*

Partner B checks:

- Did you identify the interacting objects?
- Did you distinguish the force from the effect?
- Is the force internal or external?
- If you named an internal force, does the evidence support it?
- Did you describe the physical change?
- Could you make the chain clearer?

Partner A revises.

Switch roles.

FACILITATION PROMPTS

- What happened first?
- Which objects interacted?
- Where did the external force come from?
- Was there an internal force we could identify?
- What changed physically?
- What evidence supports each step?
- Are you naming a force or an effect?
- Does every force word in your explanation belong there?
- What could you remove to make the explanation more precise?

> **TEACHER MOVE**
>
> A concise, defensible chain is more valuable than a long explanation containing unsupported force labels.

Share | ~9 minutes

Invite several pairs.

Aim to include:

one position-change interaction

one friction interaction

one shape-change interaction

After each share, ask the audience:

- What were the interacting objects?
- Which force was external?
- Was an internal force identified?
- What physical change occurred?
- What evidence supported the explanation?

Compare applied force changing position with compression changing shape.

Ask:

- "How are these both examples of interactions leading to physical change?"
- "How are the forces and effects different?"

Reconnect to the Adventure.

Ask:

- "Which part of Rob's frisbee journey can we confidently describe as an applied-force interaction?"
- Students should identify the interaction with Rob's hand rather than attempting to label every force during flight.

FACILITATION PROMPTS

- What part of their chain is strongest?
- Did the interaction support the force label?
- What physical change did they identify?
- How is this example different from the previous one?
- Could two forces be present in one interaction?
- Which of those can our evidence support?
- What part of the Adventure connects naturally to this investigation?

TEACHER MOVE

Keep story connections evidence-based.

The classroom investigation should deepen the Adventure rather than encourage speculative force labelling.

Think It Through | ~3 minutes

Ask:

- Why is identifying the interaction important before naming the force?
- How can an external force lead to a change within an object?
- What kinds of physical change did our investigations reveal?
- Why does evidence matter when several force names could seem possible?

Return to the central question.

Keep Wondering | ~5 minutes

PUDDLE

A small question about one force or interaction.

Examples:

- What is an applied force?
- What force opposed the sliding movement?
- What is compression?
- What is torsion?

POND

A question connecting a few parts of an interaction.

Examples:

- How did the hand-frisbee interaction change the frisbee's position?
- How did changing the surface affect our friction investigation?
- How did squeezing the foam produce compression?

LAKE

A question requiring connections across several interactions.

Examples:

- How can the same external force produce different effects on different objects?
- How are movement-changing interactions different from shape-changing interactions?
- Why is identifying the interacting objects useful before deciding what forces are present?

OCEAN

A deep scientific question about forces, interactions, and evidence.

Examples:

- How can an external interaction create a force or change that is not directly visible inside an object?
- Why is a force explanation stronger when it identifies both the interaction and the physical change?
- How could the same object experience different forces during different parts of one journey?

The purpose is not to reward the most complicated vocabulary.

Depth comes from tracing relationships, comparing interactions, evaluating evidence, and asking what can reasonably be supported.

Invite Student Questions

Ask:

- "What are you still wondering about forces and interactions in Rob and Newton's Adventure?"
- Accept questions connected to Rob's hand and frisbee, the ground, object movement, shape, friction, or other observable interactions.

FACILITATION PROMPTS

- Which objects are interacting in your question?
- Are you wondering about an external force, internal force, or physical effect?
- What evidence would we need?
- Could our classroom investigation test it?
- What part of the Adventure made you wonder that?
- Can we make this Puddle deeper?
- What relationship could turn this Pond into a Lake?
- Could more than one explanation be possible until we collect evidence?

TEACHER MOVE

Keep questions anchored to interaction analysis and the evidence students have encountered.

More complex frisbee aerodynamics can remain a worthwhile future question rather than being improvised beyond the selected Grade 6 investigation.

Close with one student-generated question worth preserving.

"Every adventure begins with a question. Keep wondering."

Likely Misconceptions and Helpful Responses

If students...	Try this teacher response
If students think external means outdoors:	Try: "External means the force acts on the object from outside the object."
If students think internal means inside the classroom:	Try: "Internal means the force exists within the object."
If students call movement itself a force:	Try: "What force acted, and what physical change happened afterward?"
If students call every resistance force friction:	Try: "Are the objects or surfaces in contact in a way that opposes movement?"
If students identify the hands squeezing as compression:	Try: "The hands apply an external force. What internal force describes the squeezing within the object?"
If students treat all bending or deformation as torsion:	Try: "Torsion specifically describes twisting. What is happening to this object?"
If students list every force term for one	Try:

If students...	Try this teacher response
interaction:	“Which force can you support with evidence from this interaction?”
If students think an internal force must be visible:	Try: “What observable change gives us evidence of what is happening within the material?”
If students apply the classroom station model to every part of frisbee flight:	Try: “Which interaction did we actually investigate? Which story claim can that evidence support?”

Use the Evidence Next

If a student identifies a physical effect but not the force:

Trace backward to the interaction and ask what produced the change.

If a student identifies applied force accurately:

Invite comparison with friction.

If a student confuses external and internal forces:

Use two columns and sort only the forces encountered in the investigation.

If a student identifies compression confidently:

Compare it with torsion using a contrasting material.

If a student names a force without evidence:

Ask them to identify the observable change or interaction supporting the label.

If a student creates a clear interaction chain:

Invite them to analyze a new everyday example.

If a student understands several force types:

Ask how the same object could experience different interactions at different times.

If a student generates primarily Puddle questions:

Invite them to connect interaction → force → physical change.

If a student demonstrates understanding through a labelled diagram or sequence:

Treat the interaction map as substantive evidence of scientific understanding.

Optional Science Extensions

Use these only when they naturally support classroom learning. They are not required parts of the two-session experience.

FORCE CARD SORT

Provide the selected terms:

applied force

friction

compression

torsion

Students sort them as external or internal and explain what feature of each definition supports the classification.

FRICTION COMPARISON

Use the same sliding object across additional surfaces.

Keep the starting condition as consistent as reasonably possible.

Students record patterns and discuss what evidence supports a claim about the interaction.

INTERACTION MAP

Choose a familiar classroom or everyday interaction.

Students build:

Objects interacting
→ external force
→ internal force if supported
→ physical change
→ evidence

Require evidence for every label.

STORY FORCE DETECTIVE

Return to The Long Way Down.

Students identify interactions that can be supported directly by the story.

For each, separate:

What the story explicitly shows

What Grade 6 force knowledge may help us interpret

What we **cannot** confidently claim without further evidence

Every adventure begins with a question.
Keep wondering.

THE ADVENTURES WITH FRISBEE ROB

The Long Way Down

Adventure 001: Isaac Newton

GRADE 6

SOCIAL STUDIES

Teacher Guide

Ideas of Democracy Through Time

GRADE	SUBJECT	TIME
Grade 6	Social Studies	2 × 30 minutes

CENTRAL QUESTION

How can examining democratic principles across time and place help us understand democracy today?

Wonder in Motion

Lesson at a Glance

Story connection	*The Long Way Down* invites Rob and the reader to enter another time and ask why ideas from the past still matter. Grade 6 applies that same historical habit to systems of government rather than science. Students examine democratic principles across different times and places and ask how historical examples can provide insight into contemporary democracy.
Social Studies focus	Foundational democratic principles, ancient Athens, direct democracy, participation and exclusion, the Roman Republic and representation, the Haudenosaunee Confederacy decision-making structure, historical influence, comparison across time and place, and the importance of historical context.
Learning intention	We are learning to identify foundational democratic principles and compare how they appear in different historical government systems.
Core experience	Across two 30-minute sessions, students collaboratively build a Democracy Through Time Board organized around the curriculum principles of **equality under law, justice, freedom, and representation**. They examine selected features of ancient Athenian direct democracy, identify important historical limits on participation, connect representation with the Roman Republic, examine democratic principles within the Haudenosaunee Confederacy decision-making structure, rehearse comparisons, and share evidence-based conclusions about how history provides insight into modern democracy.
Flexible use	Session 1 is a complete core lesson and can be used independently. Session 2 continues the same Wonder Lab by giving students additional time to compare, rehearse, explain, share, and deepen their Social Studies thinking. Teachers with a continuous 60-minute block may teach both sessions together.
Use after reading	Read Adventure 001: *The Long Way Down* before beginning. The story reading is separate from the two Social Studies sessions.
Story context	Isaac Newton was a real historical person. Rob's visit and their conversation are imaginative.
Important Social Studies distinction	The Adventure itself contains no historical evidence about democracy. Its role is to reinforce a habit of asking how ideas from the past connect with the present. All democratic content comes from the Social Studies curriculum and appropriate historical resources. Avoid presenting democracy as a single invention created once in Athens and

	copied unchanged afterward. The curriculum identifies multiple historical foundations and contexts.

Optional Teacher-Spoken Success Indicators

I can identify foundational democratic principles.

I can describe a feature and a limitation of ancient Athenian democracy.

I can compare democratic ideas across two historical systems.

I can explain how history can provide insight into democratic principles today.

How to Use This Guide

THE GUIDE IS A TOOL, NOT A SCRIPT

This guide is designed to support responsive teaching rather than prescribe every word or action.

Session 1 is a complete 30-minute Grade 6 Time and Place lesson and can be taught independently.

Session 2 continues the same learning through comparison, rehearsal, refinement, sharing, and questioning. It does not introduce additional curriculum.

Follow productive historical thinking while protecting the central question, selected Time and Place KUSP, evidence-based reasoning, meaningful participation, and approximate lesson timing.

Keep the four selected democratic principles visible throughout the lesson:

equality under law

justice

freedom

representation

Historical systems should be examined in their contexts.

For example, ancient Athens developed direct democratic structures while political participation was restricted by citizenship and social class.

Do not imply that identifying democratic principles means two historical systems were identical.

The goal of the second session is not to do more.

It is to give students enough time to compare systems, account for historical context, improve explanations, and communicate their understanding.

Curriculum Alignment

Organizing Idea	Time and Place: Exploring the dynamic relationships between people, place, and time supports understanding of perspectives and events to make

	meaning of the world.
Guiding Question	How can history provide insight into modern democracies?
Learning Outcome	Students relate the foundational principles of democracy to government systems throughout time and place.
Assessment Focus	Gather formative evidence of selected Grade 6 Time and Place KUSP through students' identification of democratic principles, comparison of historical government systems, and explanations of how historical examples provide insight into democratic ideas. Session 1 provides sufficient opportunities to gather evidence of the selected KUSP. Session 2 offers additional opportunities for students to demonstrate and communicate their understanding. These lessons do not assess the complete learning outcome.

Selected KUSP for These Lessons

KUSP element	Selected curriculum learning	What it looks or sounds like
Knowledge	Democracy originated in ancient Athens in response to authoritarian rule. Democracies have fundamental principles, including equality under law justice freedom representation Direct democracy, where all male citizens were required to participate in government, originated in ancient Athens in response to authoritarian rule. Athens had three social classes with different rights and responsibilities: citizens metics slaves Citizens and non-citizens in ancient Athens and the Roman Republic were defined by social class. Features of direct democracy from ancient Athens included a lottery	Students identify democratic features of ancient Athens while also recognizing that political participation was not available equally to everyone living in Athens. They distinguish a democratic principle from the specific historical structure through which it was expressed.

KUSP element	Selected curriculum learning	What it looks or sounds like
	the Draconian constitution majority rule through voting debate of proposed laws secret ballots separate government bodies (Boule, Ecclesia, and Dikasteria) equal political rights for male citizens, such as freedom of speech and political participation	
Understanding	Democracy and democratic principles were significantly shaped by events in England. Athenian democracy provided a foundation for citizenship and participation in contemporary society. Democracy in the Roman Republic provided a foundation for representation in contemporary society. The Haudenosaunee Confederacy decision-making structure includes democratic principles.	Students recognize that contemporary democratic ideas have more than one historical influence and compare shared principles without claiming the systems were identical.
Skills & Procedures	Investigate the origin of democracy in ancient Athens. Identify the similarities and differences between Athenian democracy and the Roman Republic. Compare direct and representative democracy. Discuss ways legislation and agreements have advanced principles of democracy. Explain roles of Chiefs and Clan Mothers in decision making in the Haudenosaunee Confederacy.	Students compare selected systems using democratic principles, identify meaningful similarities and differences, and include historical context when interpreting the comparison. The curriculum also identifies that Chiefs represent the voices of each Nation in Haudenosaunee Confederacy decision making, Clan Mothers influence decision making, and the Great Law of Peace guides roles, decision-making procedures, and collective rights.

Curriculum source: Government of Alberta, Social Studies (K–6) Curriculum, Time and Place. [*View the Alberta program of study*]

Teacher Preparation

STANDARD PATHWAY

Use these two 30-minute sessions after students have heard Adventure 001: *The Long Way Down*.

Session 1: **Build the Democracy Through Time Board** is the core lesson. Students use the Adventure's past-present connection to ask whether systems today also have histories, examine an Athenian democratic feature and limitation, and collaboratively compare selected democratic ideas across ancient Athens, the Roman Republic, and the Haudenosaunee Confederacy.

Session 2: **Compare the Principles** continues the same Wonder Lab. Students return to the board, challenge an overly simple origin story, rehearse a comparison with a partner, refine similarities and differences, share evidence-based conclusions, and explore questions of different depths about citizenship, participation, representation, and democracy across time and place.

If only one 30-minute period is available, teach Session 1.

If a continuous 60-minute block is available, the two sessions can be taught together with a brief transition or movement break.

Flexible Use of the Guide

Core Pathway | 30 minutes

Teach Session 1: **Build the Democracy Through Time Board**.

Students experience:

Get Curious → Model → Build → Think It Through

This is a complete Grade 6 Time and Place lesson and provides opportunities to gather formative evidence of the selected KUSP.

Full Wonder Lab | 2 × 30 minutes

Teach both sessions.

Students experience:

Model → Build → Rehearse → Share

Session 2 deepens the same learning rather than adding additional curriculum.

It also provides time for students to reflect on and question the Social Studies ideas in the Adventure through:

Puddle → Pond → Lake → Ocean

Continuous Block | ~60 minutes

If scheduling allows, teach both sessions consecutively.

Take a brief movement or transition break after the first Think It Through before beginning Reconnect.

Materials

A copy of Adventure 001: *The Long Way Down*

Whiteboard, chalkboard, or chart paper and marker

A Democracy Through Time Board with:

TIME / PLACE / SYSTEM

FEATURE

DEMOCRATIC PRINCIPLE

IMPORTANT CONTEXT OR LIMIT

Principle cards:

EQUALITY UNDER LAW

JUSTICE

FREEDOM

REPRESENTATION

Historical context cards:

ancient Athens

Roman Republic

Haudenosaunee Confederacy

England / later historical influence

Additional cards:

direct democracy

representative democracy

citizen

metic

slave

participation

voting

debate

representation

Chiefs

Clan Mothers

Great Law of Peace

Optional comparison arrows or Venn diagram template

Before Students Begin

Prepare a manageable set of curriculum statements for each historical context.

Ancient Athens

direct democracy

male citizen participation

voting

debate

separate government bodies

three social classes with different rights and responsibilities

Roman Republic

the curriculum understanding that Roman democracy provided a foundation for representation in contemporary society

Haudenosaunee Confederacy

decision-making structure includes democratic principles

Chiefs represent the voices of each Nation in decision making

Clan Mothers influence decision making

Great Law of Peace guides roles, decision-making procedures, and collective rights

Prepare the statement:

> ***"Democracy was invented once in one place and has stayed the same ever since."***

Students will evaluate it from the evidence.

- Use professional judgment to choose the Session 2 grouping—partners, groups of three, or whole group—that best supports student participation. Early in the year, whole-group practice may help students establish the routine, build confidence, and understand what successful participation looks and sounds like.

Keep the Democracy Through Time Board available for Session 2.

Substitutions

Use comparison charts, digital cards, approved source excerpts, teacher-selected historical diagrams, timeline representations, or a Venn diagram.

Students may explain comparisons orally rather than producing extended written responses.

Useful Vocabulary

Pre-teach essential vocabulary through an explicit vocabulary routine, providing students with opportunities to build meaning, interact with the words, and use them in context before and throughout the lesson.

Social Studies words:

democracy • principle • equality • justice • freedom • representation • direct democracy • representative democracy • citizen • participation • majority • government • historical context • Haudenosaunee Confederacy

Story words:

Isaac Newton • Rob • Adventure • past • present • question • historical

Democracy is a system of government involving citizens in political decision making.

A **principle** is a foundational idea used to guide thinking or action.

Direct democracy involves citizens participating directly in government decisions.

Representative democracy involves representatives making decisions for society.

Representation involves people having their interests or voices represented in decision making.

Historical context includes the time, place, institutions, social structures, and conditions needed to understand an event or system.

Supporting Our Diverse Learners

Use these supports proactively while preparing and teaching the two sessions.

Make it accessible	Use the same four principle cards across every historical example. Keep systems visually separated so students can compare without holding all details in memory.
Support language	Model sentence frames such as: This system shows ______ because ______. A similarity is ______. A difference is ______. One important historical context is ______. Participation was limited because ______. This provides insight into democracy today because ______.
Offer response choices	Accept oral comparison, card sorting, Venn diagrams, arrows, timeline placement, short written responses, digital representation, communication devices, or assistive technology.
Support participation	Offer roles such as principle matcher, system reader, context checker, comparison recorder, evidence challenger, board connector, or Social

	Studies reporter.
Reduce memory load	Keep the four democratic principles visible. Compare no more than two systems at a time during rehearsal. Provide names such as Boule, Ecclesia, and Dikasteria on cards rather than requiring spelling or recall unless already part of classroom instruction.
Support rehearsal	Allow students to compare one principle across two systems before asking them to synthesize several principles. Let students revise an inaccurate statement after examining historical context.
Preserve the learning	Change the number of features, reading demand, writing load, or response mode—not the requirement to compare democratic principles with historical context.

KUSP Assessment: Evidence to Notice

FORMATIVE ASSESSMENT

Gather evidence through observations and conversations across both sessions.

Session 1 provides sufficient opportunities to gather evidence of the selected KUSP.

Session 2 gives students additional opportunities to demonstrate and communicate their understanding.

Evidence source	Listen or look for	Possible teacher note
Observation	Student matches a historical feature with a defensible democratic principle while noticing relevant historical context.	“Connects citizen voting in Athens with participation and freedom but notes political rights were restricted to male citizens.”
Conversation	Student compares systems rather than merely listing facts.	“Explains that Athens involved direct citizen participation while representation appears as a different democratic idea in the Roman Republic.”
Product	Student comparison identifies a similarity, difference, democratic principle, and meaningful historical context.	“Identifies representation within the Haudenosaunee decision-making structure and explains the roles of Chiefs and Clan Mothers.”

The Two-Session Flow

Session 1 — Build the Democracy Through Time Board | 30 minutes

Time	Section	Student experience	Teacher move
~5 min	**Get Curious**	Use the Adventure's connection with the past to consider whether present-day government ideas also have histories.	Shift from Newton's historical ideas to the broader question of democratic ideas across time and place.
~5 min	**Wonder Lab: Model**	Analyze one Athenian democratic feature alongside one historical limitation.	Model how a system can contribute a democratic idea while still requiring historical context.
~15 min	**Wonder Lab: Build**	Collaboratively connect principles and features across ancient Athens, the Roman Republic, and the Haudenosaunee Confederacy.	Require evidence for similarities and differences and avoid a single-origin narrative.
~5 min	**Think It Through**	Explain how history provides insight into modern democratic principles.	Connect comparisons with multiple historical foundations and contexts.

Session 2 — Compare the Principles | 30 minutes

Time	Section	Student experience	Teacher move
~5 min	**Reconnect**	Return to the Democracy Through Time Board and challenge an overly simple statement about democracy's history.	Reactivate evidence-based historical comparison.
~8 min	**Wonder Lab: Rehearse**	Choose two systems and practise a comparison using one or more democratic principles.	Prompt students to include both similarity/difference and historical context.
~9 min	**Wonder Lab: Share**	Present comparisons and evaluate what each reveals about democracy across time and place.	Focus audience attention on evidence, context, and multiple historical influences.
~3 min	**Think It Through**	Reflect on why democratic principles should be studied historically rather than as timeless definitions alone.	Return to the central question.

Time	Section	Student experience	Teacher move
~5 min	**Keep Wondering**	Generate and deepen questions about citizenship, participation, representation, and democracy across time.	Use Puddle–Pond–Lake–Ocean language to deepen story-anchored historical wondering.

Session 1 — Build the Democracy Through Time Board

Get Curious | ~5 minutes

Show Newton from the Adventure.

Ask:

> *"Why does the Adventure bring Rob into the past?"*

Students may say:

To meet someone important.

To understand an idea.

To ask questions.

To see where ideas came from.

Ask:

> *"If ideas in science have histories, could ideas about how societies make decisions have histories too?"*

Display:

DEMOCRACY

Invite brief prior knowledge.

Then display the four curriculum principles:

EQUALITY UNDER LAW

JUSTICE

FREEDOM

REPRESENTATION

Tell students:

> *"Today we are not asking which historical society was the 'best democracy.'"*
>
> *"We are asking how history helps us understand democratic principles."*

TEACHER MOVE

Do not invent a political connection with Newton.

The Adventure connection is the practice of looking backward to understand ideas.

2. Wonder Lab

Model | ~5 minutes

Select ancient Athens.

Place:

DIRECT DEMOCRACY

Explain from the curriculum that all male citizens were required to participate in government.

Add features such as:

majority rule through voting

debate of proposed laws

secret ballots

Ask:

- "Which democratic ideas might we recognize?"
- Students may connect participation, freedom, or equality among male citizens.

Then add:

Athens had three social classes:

citizens

metics

slaves

Ask:

- "Did everyone living in Athens have the same political rights?"
- No.

Add to the Context column:

Political participation was restricted by citizenship and social class.

Think aloud:

> *"A system can contribute an important democratic idea and still have serious limitations."*
>
> *"Understanding the contribution does not require pretending the system was equal for everyone."*

FACILITATION PROMPTS

- What feature are we examining?
- Which democratic principle might connect with it?

- Who participated?
- Who did not?
- What did citizenship mean in this context?
- Why does historical context matter?
- Can a system contain democratic features while excluding many people?
- What claim is supported?

TEACHER MOVE

This distinction is essential.

“Foundation” does not mean “perfect model.”

Build | ~15 minutes

Keep ancient Athens visible.

Now add:

ROMAN REPUBLIC

Use the curriculum understanding:

Democracy in the Roman Republic provided a foundation for representation in contemporary society.

Ask:

- “What principle immediately connects with that statement?”
- Representation.

Compare:

Athens — direct participation

Roman Republic — representation as an important foundation

Ask:

- “How are those ideas related?”
- “How are they different?”

Next add:

HAUDENOSAUNEE CONFEDERACY

Use the curriculum statements:

The decision-making structure includes democratic principles.

Chiefs represent the voices of each Nation in decision making.

Clan Mothers influence decision making.

The Great Law of Peace guides roles, decision-making procedures, and collective rights.

Ask:

- "Where do we see ideas connected with representation, decision making, rights, or responsibility?"
- Do not tell students that the Haudenosaunee system is identical to Athens, Rome, or modern Canadian government.

Finally add:

ENGLAND

Use only the curriculum understanding:

Democracy and democratic principles were significantly shaped by events in England.

Place it as another historical influence without adding unsupported specifics during the core pathway.

Return to the statement:

> ***"Democracy was invented once in one place and stayed the same."***

Ask:

> *"What evidence now challenges that statement?"*

FACILITATION PROMPTS

- What principle can we identify?
- What feature supports that connection?
- How is the Roman Republic similar to or different from Athens?
- Where do we see representation?
- What roles do Chiefs and Clan Mothers have?
- What does the Great Law of Peace guide?
- Does one system contain every democratic principle in exactly the same way?
- What does England add to the curriculum's larger story?
- What evidence shows democracy has been shaped across different times and places?

TEACHER MOVE

Keep the board comparative rather than presenting history as a straight line toward one perfect modern system.

Think It Through | ~5 minutes

Step back from the Democracy Through Time Board.

Ask:

- What fundamental democratic principles does the curriculum identify?
- What does direct democracy mean?
- What features existed in ancient Athens?
- Who had political rights in Athens?
- What important limitation does that reveal?
- What did the Roman Republic contribute to later ideas of representation?
- What democratic ideas appear in the Haudenosaunee Confederacy decision-making structure?

- What roles do Chiefs and Clan Mothers play?
- What does the curriculum tell us about events in England?
- Why is it more accurate to say democratic ideas were shaped across time and place?

Return to the central question:

How can examining democratic principles across time and place help us understand democracy today?

Sample Response Guidance

Possible response:
"Athens developed direct democracy, but political participation was limited."
"The Roman Republic is connected with representation."
"The Haudenosaunee Confederacy has a decision-making structure that includes democratic principles."
"Chiefs represent Nations and Clan Mothers influence decision making."
• "Democratic ideas were shaped in different places and times." • Look for comparison with context rather than a list of names.

Session 1 Closing

Tell students:

> *"Just as one Adventure with Newton cannot tell the entire history of science, one place cannot tell the complete history of democracy."*
>
> *"Today we looked across different times and places and found both connections and differences."*
>
> *"Next time, you will compare two systems more closely and explain what that history helps us understand."*

If Session 1 is the only lesson being taught, finish by asking:

> *"What is one example showing that democratic ideas have developed in more than one historical context?"*

Session 2 — Compare the Principles

Reconnect | ~5 minutes

Display:

> *"Democracy began in Athens and has stayed exactly the same ever since."*

Ask:

> *"What evidence from our board challenges this statement?"*

Students may identify:

direct versus representative forms

Roman Republic

Haudenosaunee Confederacy

events in England

different participation structures

different historical contexts

Ask:

- "What part of the statement could be revised without ignoring the curriculum's statement that democracy originated in ancient Athens?"
- Invite a more nuanced response.

For example:

> *"Direct democracy originated in ancient Athens, but democratic principles and systems were shaped in multiple historical contexts."*

TEACHER MOVE

Use the overly simple statement to reactivate nuanced historical reasoning.

2. Wonder Lab

Rehearse | ~8 minutes

Students work with partners.

Each pair chooses two historical systems.

Possible comparisons:

Athens and Roman Republic

Athens and Haudenosaunee Confederacy

direct and representative democracy

Partner A explains:

> *"Both systems ________."*
>
> *"One important difference is ________."*
>
> *"The democratic principle we see is ________."*
>
> *"An important historical context is ________."*
>
> *"This provides insight into democracy because ________."*

Partner B checks:

- Did the comparison use actual curriculum evidence?
- Did the speaker identify a similarity and a difference?
- Did the explanation include historical context?

- Did the speaker imply the systems were identical?
- Did the speaker make an unsupported modern judgment?

Partner A revises.

Switch roles.

FACILITATION PROMPTS

- What exactly are you comparing?
- Which principle appears in both?
- What feature differs?
- Who participated?
- How was representation organized?
- What historical context changes our interpretation?
- Which conclusion is supported?
- What would be too broad?

> **TEACHER MOVE**
> A sophisticated Grade 6 answer can recognize both continuity and difference simultaneously.

Share | ~9 minutes

Invite several comparisons.

After each share, ask:

- What similarity was supported?
- What difference mattered?
- Which principle appeared?
- What historical context changed the interpretation?
- What did the speaker avoid oversimplifying?

Suggested comparisons:

Athens and Roman Republic

Direct participation versus representation.

Athens and Haudenosaunee Confederacy

Different decision-making structures with identifiable democratic principles.

Direct and representative democracy

Different ways participation and decision making can be organized.

Then ask:

> *"How does comparing systems help us understand democracy better than memorizing one definition?"*

FACILITATION PROMPTS

- What was the strongest evidence?
- Was the comparison fair?
- Did the systems use the same structure?

- Can the same democratic principle appear differently in different systems?
- What does historical context help us avoid misunderstanding?
- How does this comparison provide insight into democratic ideas today?

TEACHER MOVE

Keep contemporary application conceptual.

The selected Time and Place learning is historical comparison, not evaluation of current political parties or partisan issues.

Think It Through | ~3 minutes

Ask:

- Why should democratic ideas be studied across time and place?
- What danger comes from treating one historical system as the entire story?
- How does comparison deepen understanding?
- Why does context matter when judging whether two systems are similar?

Return to the central question.

Keep Wondering | ~5 minutes

PUDDLE

Examples:

- Where did direct democracy originate according to the curriculum?
- What are the four democratic principles listed?
- What does representation mean?
- Who were the three social classes in ancient Athens?

POND

Examples:

- How did participation in ancient Athens differ from democratic participation in other systems we studied?
- How are direct and representative democracy different?
- How do Chiefs and Clan Mothers contribute to Haudenosaunee decision making?
- Why does social class matter when studying Athens?

LAKE

Examples:

- How can a historical system contribute democratic ideas while still excluding many people?
- How can the same democratic principle appear differently in different times and places?
- Why can representation take more than one institutional form?
- How does historical context change the way we interpret the word democracy?

OCEAN

Examples:

- Who has counted as a citizen at different points in history, and how does that shape what democracy meant?
- Can a society contain democratic structures while some people have fewer political rights? What evidence would we need to evaluate that claim?
- Why is it more accurate to describe democracy as shaped by multiple histories rather than as one invention copied unchanged?
- How might Rob's habit of questioning familiar things help someone examine assumptions about government and citizenship?

The deepest questions ask students to connect principles, participation, context, and historical evidence—not to adopt a political position.

Invite Student Questions

Ask:

> *"What are you still wondering about how ideas from the past shape systems people live with today?"*

Invite questions connected to:

democratic principles

Athens

Roman Republic

Haudenosaunee Confederacy

representation

citizenship

participation

historical change

FACILITATION PROMPTS

- Is your question about a principle or a particular system?
- Would comparing another time or place help?
- Whose participation matters in the question?
- What historical evidence would we need?
- Can you turn a fact question into a comparison question?
- What part of the Adventure made you think about tracing an idea through time?

TEACHER MOVE

Keep Keep Wondering connected to the Adventure through the habit of questioning familiar ideas.

Democratic content remains grounded in Social Studies evidence.

Close with one student-generated question worth preserving.

"Every adventure begins with a question. Keep wondering."

Likely Misconceptions and Helpful Responses

- **If students say democracy was invented once and copied unchanged**

Try:

- “What other historical foundations and systems does our curriculum identify?”
- **If students assume direct democracy is automatically more democratic than representative democracy**

Try:

- “What criteria or democratic principle are you using to make that judgment?”
- **If students treat representation as only a modern idea**

Try:

- “What does our curriculum say about the Roman Republic?”
- **If students treat the Haudenosaunee Confederacy as identical to modern Parliament**

Try:

- “Which democratic principles can we identify, and what structural differences remain?”
- **If students assume every historical change automatically means improvement**

Try:

- “Change and improvement are not the same word. What evidence supports your judgment?”
- **If students think identifying democratic principles means a system was equally democratic for everyone**

Try:

- “What does the historical context tell us about participation and rights?”
- **If students use the Newton Adventure as political evidence**

Try:

- “What does the Adventure help us wonder about, and what requires historical Social Studies evidence?”
- **If students think an Ocean question is about the largest government**

Try:

> *“Ocean means deeper historical reasoning.”*

If students...	Try this teacher response
If students say ancient Athens was democratic for everyone	Try: • “Who counted as a citizen, and who did not have the same political rights?”

Use the Evidence Next

If a student lists principles without examples

Ask them to match one principle with a historical feature.

If a student understands ancient Athens but does not compare

Add the Roman Republic or Haudenosaunee Confederacy.

If a student compares systems but ignores historical limitations

Ask:

- “Who could participate?”
- **If a student recognizes representation**
- Ask how representation appears in another historical context.
- **If a student understands multiple historical influences**
- Ask why a single-origin story is incomplete.
- **If a student claims two systems are identical because both contain representation**
- Ask what structures, roles, and historical contexts differ.
- **If a student makes a broad present-day claim**
- Return to what the historical evidence actually supports.
- **If a student generates mostly Puddle questions**
- Invite comparison across time or place.
- **If a student demonstrates strong comparative reasoning through a chart or diagram**
- Treat the visual comparison as substantive assessment evidence.

Optional Social Studies Extensions

PRINCIPLE TRACKER

Choose one principle:

equality under law

justice

freedom

representation

Trace where students can identify it across the historical contexts studied.

Ask how the expression of the principle changes.

DIRECT OR REPRESENTATIVE?

Provide several decision-making scenarios.

Students identify whether each more closely resembles direct or representative decision making and justify the choice.

Keep the scenarios non-partisan and conceptual.

WHO PARTICIPATED?

Create a comparison focused specifically on participation.

Ask:

- Who participated?
- How?

- Who was excluded or had different rights?
- Why does that context change how we understand the system?

THE QUESTION ROB WOULD ASK

Imagine the Wind carries Rob into a historical society and he sees people making public decisions.

Before deciding whether the system is democratic, what questions should he ask?

Students create questions about:

participation

rights

representation

decision making

who is included

who is excluded

Compare the questions using Puddle–Pond–Lake–Ocean.

Every adventure begins with a question.
Keep wondering.