inquisitive

GRADE 4 · PHYSICAL SCIENCES · FAST PATH

Unit: Energy

Lessons in unit: 7 · 24 days · 20–30 min per day · 660 min total · ↳ Time-saving teaching move · ★ Checkpoint

Lesson 1: Fast Energy

PHENOMENON QUESTION
Would you ride a roller coaster?

OUTCOME
I can describe an example that shows a faster-moving object has more energy.

TIME
3 days · 25–30 min per day
85 min total

DAY 1 · 30 MIN

PREP Set out ramp boards, four books per group, balls, blocks and measuring tools.

5 MIN — Activity 1
↳ Activity 1: exchange three why questions orally instead of writing them.

25 MIN — Activity 2

DAY 2 · 30 MIN

5 MIN — Activity 3
↳ Activity 3: justify each true/false choice orally; omit copying the corrected statements.

10 MIN — Activity 4

15 MIN — Activity 5

DAY 3 · 25 MIN

20 MIN — Activity 6 ★

5 MIN — Activity 9

Lesson 2: When Objects Collide

PHENOMENON QUESTION
How does a Rube Goldberg machine work?

OUTCOME
I can explain what happens to the energy of two objects when they collide.

TIME
3 days · 30 min per day
90 min total

DAY 4 · 30 MIN

PREP Set out tennis balls, crumpled paper balls, and clear a safe throwing space.

10 MIN — Activity 1

10 MIN — Activity 2
↳ Activity 2: model one question; pairs generate others, choose one and predict.

10 MIN — Activity 3
Part 1

DAY 5 · 30 MIN

PREP Keep balls available for the remaining tests.

10 MIN — Activity 3
Parts 2–3

10 MIN — Activity 4
↳ Activity 4: run student-proposed tests on one class pool simulation.

5 MIN — Activity 5
↳ Activity 5: build one class energy-transfer diagram from students' evidence.

5 MIN — Activity 6

DAY 6 · 30 MIN

PREP Set out marbles and a safe, contained testing surface.

20 MIN — Activity 7 ★

8 MIN — Activity 8
↳ Activity 8: evaluate all three claims as a class; partners create and test their own claim orally.

2 MIN — Activity 11

Lesson 3: Sound Moves

PHENOMENON QUESTION
Why are sounds different?

OUTCOME
I can show evidence that sound moves from one place to another.

TIME
4 days · 20–30 min per day
100 min total

DAY 7 · 20 MIN

- 10 MIN — Activity 1
  ↳ Activity 1: collect group explanations on one class chart instead of separate posters.
- 10 MIN — Activity 2

DAY 8 · 30 MIN

PREP Choose an outdoor area or gym for the sound-distance investigation.

- 20 MIN — Activity 3
- 10 MIN — Activity 4

DAY 9 · 30 MIN

PREP Cut strings to about one yard; set out forks and spoons.

- 20 MIN — Activity 5
- 10 MIN — Activity 6
  ↳ Activity 6: partners explain their table-tapping evidence orally instead of writing.

DAY 10 · 20 MIN

- 15 MIN — Activity 7 ★
- 5 MIN — Activity 10

Lesson 4: Heat Moves

PHENOMENON QUESTION
Does heat move?

OUTCOME
I can show how energy in the form of heat can move from one object to another.

TIME
3 days · 20–30 min per day
75 min total

DAY 11 · 20 MIN

- 5 MIN — Activity 1
- 10 MIN — Activity 2
- 5 MIN — Activity 3
  ↳ Activity 3: share hot/cold predictions orally instead of writing them.

DAY 12 · 30 MIN

PREP Set out thermometers, measuring containers and cold/hot water. Teacher handles hot water; do not use boiling water.

- 20 MIN — Activity 4
  ↳ Activity 4: use one teacher-led setup; students record both temperatures, the five-minute change and their own conclusions.
- 10 MIN — Activity 5

DAY 13 · 25 MIN

- 5 MIN — Activity 6
  ↳ Activity 6: label a shared class diagram and add two student-proposed examples.
- 15 MIN — Activity 7 ★
- 5 MIN — Activity 10

Lesson 5: Switch the Light On!

PHENOMENON QUESTION
When we click a switch, why does a light turn on?

OUTCOME
I can show how energy in the form of light travels from one place to another.

TIME
4 days · 20–30 min per day
105 min total

DAY 14 · 30 MIN

PREP Arrange the three light stations and gather their materials.

- 10 MIN — Activity 1
- 20 MIN — Activity 2
  Complete the straight-line and transparent/translucent/ opaque stations; save the warming station for next day.

DAY 15 · 30 MIN

PREP Restore the warming station; set out battery holders, wires and bulbs. Disconnect a wire between tests; avoid hot bulbs.

- 10 MIN — Activity 2
  Complete the light-warming station.
- 5 MIN — Activity 3
- 15 MIN — Activity 4
  Part 1

DAY 16 · 20 MIN

PREP Keep circuit materials available.

- 5 MIN — Activity 4
  Part 2
- 15 MIN — Activity 5 ★

DAY 17 · 25 MIN

PREP Cut cardboard and make cotter-pin holes for switches.

- 20 MIN — Activity 6
- 5 MIN — Activity 9

Lesson 6: Converting Energy

PHENOMENON QUESTION
How can wind power help charge a cell phone?

OUTCOME
I can describe how a device converts one form of energy into another.

TIME
4 days · 25–30 min per day
115 min total

DAY 18 · 30 MIN

- 10 MIN — Activity 1
  ↳ Activity 1: discuss the video questions orally.
- 5 MIN — Activity 2
- 10 MIN — Activity 3
  ↳ Activity 3: model one explanation; pairs explain the remaining examples.
- 5 MIN — Activity 4

DAY 19 · 30 MIN

PREP Arrange shared bins of materials for both offered challenges.

- 25 MIN — Activity 5
  ↳ Activity 5: offer the flashlight or sound-device challenge; retain criteria, constraints, brainstorming and a labeled design.
- 5 MIN — Activity 6

DAY 20 · 30 MIN

PREP Keep designs and construction materials ready.

- 30 MIN — Activity 7
  ↳ Activity 7: neighboring groups demonstrate simultaneously, preserving building, testing and refinement time.

DAY 21 · 25 MIN

- 20 MIN — Activity 8 ★
- 5 MIN — Activity 11

Lesson 7: Energy Resources	DAY 22 · 30 MIN	DAY 23 · 30 MIN	DAY 24 · 30 MIN
Assessment: Anchor Maps and Autogradable Summative Assessments are not included within this pacing guide.	5 MIN Activity 1	30 MIN Activity 5 ↳ Activity 5: divide reading among expert-group members, then explain findings; every student records answers to all four questions.	20 MIN Activity 6 ★
	10 MIN Activity 2		5 MIN Activity 7 ↳ Activity 7: sort all seven resources together, then have partners justify the classifications.
	10 MIN Activity 3		5 MIN Activity 10
	5 MIN Activity 4		