PRESENTER SCRIPT · GRADE 6 · Enrichment · not in IN 2023 Gr 6

Kinetic & Potential Energy and Heat Transfer: teacher script

Use with the Lesson presenter (room page -> Lesson presenter). Slides show only student cues; this script has what to say. Students need the printed lesson worksheet and a pencil.

Presenter keys: Right/left arrows change slides. N shows short notes. T pauses the timer. P picks a student. F is fullscreen.

Response routine: Students write each answer on their worksheet, then show it with fingers (1 = A, 2 = B, 3 = C, 4 = D). Scan the room before revealing.

SLIDE 1: TODAY'S TARGET — 1 min

Say	Today's learning target is: "I can explain how energy changes between kinetic and potential forms and identify conduction, convection, and radiation." Read it with me.
Say	Here is how you will know you have it: the success criteria. You will prove it on the exit ticket at the end of class.
Point to	The agenda and the key vocabulary. Tell students they need their notebook, guided notes page, and pencil.

SLIDE 2: WARM-UP — 0:00–0:08

Say	Turn to Part 2 of your lesson worksheet. Answer the three questions in complete sentences. You have 5 minutes of silent work. Go.
Do	Start the 8:00 timer. Circulate. At 5 minutes say: "Turn to your partner and compare answers for 2 minutes."
Look for	1) Examples: a rolling ball, wind, a running dog. 2) The book on the high shelf, because it is higher, so it could fall farther. 3) Heat moves through the metal from the hot end to the cooler end (conduction).
Say	Call on 2-3 students for questions 1 and 2, then reveal. Say: "We will come back to question 3 at the end of class."

SLIDE 3: HOOK — 1 min

Say	Read the question on the screen: "A pencil is held still above the floor. Does it have energy?" Circle your prediction in Part 3 of your worksheet and write why. Then vote.
Background	Hold a pencil high and ask, "Does this pencil have energy right now? It is not moving." Drop it. "Where did the motion come from?"

Do	Tap +1 for each vote. Do not give the answer. Say: "By the end of the lesson, you will be able to check your prediction."

SLIDE 4: LEARN 1: POTENTIAL AND KINETIC ENERGY — 3 min

Say	Potential energy is stored energy (height, stretched springs, food). Kinetic energy is the energy of motion. Heavier or faster objects have more kinetic energy.
Worksheet	Say: "Part 5: fill in the blanks (A), do the task (B), write what your partner said (C), and answer the check (D)." Blank answers: POTENTIAL energy is stored. KINETIC energy is the energy of motion. (tap "Show the missing words" after students try.)
Explore	Students do: Label each as mostly PE or KE: a book on a shelf, a rolling ball, a stretched rubber band.
Turn and talk	Say: "A bowling ball and a tennis ball roll at the same speed. Which has more kinetic energy? Why?" Start the 1:00 timer. Then pick a pair to share.
Check	Read the question aloud. Students write, then show fingers. Scan, then reveal. Answer: (A) Potential energy. It is high but not moving.
If < 80% correct	Go back to the Explore box and model a second example out loud, then re-ask the check with a partner discussion first. See "Misconceptions to watch for" at the end of this script.

SLIDE 5: LEARN 2: ENERGY TRANSFORMS — 3 min

Say	As the coaster drops, potential energy changes into kinetic energy. The total stays the same (ignoring friction). That is conservation of energy.
Worksheet	Say: "Part 6: fill in the blanks (A), do the task (B), write what your partner said (C), and answer the check (D)." Blank answers: As an object falls, potential energy changes into KINETIC energy. The TOTAL energy stays the same. (tap "Show the missing words" after students try.)
Explore	Run the simulation: Drive the coaster and watch the energy bars. Before each change, ask students to predict in their notes. Students do: Sketch the energy bars at the top and the bottom of the hill.
Turn and talk	Say: "Why does the first hill of a roller coaster have to be the tallest?" Start the 1:00 timer. Then pick a pair to share.
Check	Read the question aloud. Students write, then show fingers. Scan, then reveal. Answer: (B) At the bottom of the biggest hill. At the bottom, most PE has become KE.
If < 80% correct	Go back to the Explore box and model a second example out loud, then re-ask the check with a partner discussion first. See "Misconceptions to watch for" at the end of this script.

SLIDE 6: LEARN 3: HEAT MOVES WARM TO COOL — 3 min

Say	Heat always flows from warmer objects to cooler ones until they are the same temperature.

Worksheet	Say: "Part 7: fill in the blanks (A), do the task (B), write what your partner said (C), and answer the check (D)." Blank answers: Heat always moves from WARMER to COOLER objects. (tap "Show the missing words" after students try.)
Explore	Point to the model: Cocoa at 70 °C in a 20 °C room: which way does heat move?. Ask: "What do you notice?" Students do: Explain why a metal desk feels cold. Use the words heat and warmer.
Turn and talk	Say: "When you hold an ice cube, does cold move into your hand, or heat move out? Explain." Start the 1:00 timer. Then pick a pair to share.
Check	Read the question aloud. Students write, then show fingers. Scan, then reveal. Answer: (C) From the cocoa to the room. Heat flows from warmer to cooler.
If < 80% correct	Go back to the Explore box and model a second example out loud, then re-ask the check with a partner discussion first. See "Misconceptions to watch for" at the end of this script.

SLIDE 7: LEARN 4: CONDUCTION, CONVECTION, RADIATION — 3 min

Say	Conduction: heat moves by touch. Convection: warm fluid (air or water) rises and cool fluid sinks, making currents. Radiation: heat travels as waves, like sunlight.
Worksheet	Say: "Part 8: fill in the blanks (A), do the task (B), write what your partner said (C), and answer the check (D)." Blank answers: CONDUCTION is heat by touching. CONVECTION is heat by moving currents. RADIATION is heat by waves. (tap "Show the missing words" after students try.)
Explore	Flip each card only after students guess: Hand on a hot pan = Conduction; Warm air rising from a heater = Convection; Sunlight warming your face = Radiation. Students do: Write your own example of conduction, convection, and radiation.
Turn and talk	Say: "Why does a cooler keep drinks cold? Which type of heat transfer is it blocking?" Start the 1:00 timer. Then pick a pair to share.
Check	Read the question aloud. Students write, then show fingers. Scan, then reveal. Answer: (B) Radiation. The heat travels as waves; you are not touching it.
If < 80% correct	Go back to the Explore box and model a second example out loud, then re-ask the check with a partner discussion first. See "Misconceptions to watch for" at the end of this script.

SLIDE 8: WORKED EXAMPLE (I DO) — 2 min

Say	Watch how I solve this. Write the final answer in Part 9 of your worksheet.
Think aloud	Sketch a roller coaster. Label the top of the first hill "most PE," the bottom "most KE." Think aloud: "Halfway down, it has some of each. Energy is changing form, not disappearing."
Reveal	Imagine a roller coaster car on a big hill. | Step 1: At the top, the car is high and slow: most potential energy (PE). | Step 2: Halfway down, it has some PE and some kinetic energy (KE). | Step 3: At the bottom, it is low and fast: most KE. | Step 4: Energy changed form. It did not disappear (some becomes heat from friction).

SLIDE 9: WE DO — 2 min

Say	Now we solve one together in Part 10. Read the problem with me.
Do	Before revealing each step, ask: "What should we do next?" Take one answer, then tap "Show next step."
Steps	At the top, the skateboarder is high and still: mostly potential energy. | As they roll down, height decreases, so potential energy decreases. | Speed increases, so kinetic energy increases. | At the bottom, most potential energy has become kinetic energy. The total stays about the same (some is lost to friction as heat).
Answer	PE changes into KE

SLIDE 10: YOU DO — 2 min

Say	Now on your own: Part 11. Solve it with no talking. You have 2 minutes.
Answer	(C) Convection. Currents in a fluid (liquid or gas) are convection.
Then	Students who got it: launch the room. Students who missed it: 3-minute reteach at your table, then start the room at the Explorer level.

SLIDE 11: WORK TIME: POWER UP INDIANA FIELD TRIP — 0:20–0:48

Say	Open Power Up Indiana Field Trip on your device. Type your name, choose the level I assigned, and begin. Whisper voice with your partner only.
Do	Start the 28:00 timer and leave this slide up. Circulate with the answer key.
Checkpoints	At 10 minutes: stage 2 done. At 20 minutes: stage 4 done; give a 5-minute warning for the final lock and turn-in.
Turn-in	Students tap "Copy my work" and paste it into the Canvas assignment (Text Entry).

SLIDE 12: DEBRIEF — 0:48–0:52

Ask	Trace the energy changes in a swing as it moves back and forth. | Which type of heat transfer keeps a room warm, and how? | Where did the energy "go" when the roller coaster stopped? (Friction -> thermal energy.)
Say	Back to warm-up question 3 and our hook vote: were our predictions right? What evidence changed your mind?
Answer	Heat moves through the metal from the hot end to the cooler end (conduction).

SLIDE 13: EXIT TICKET 0:52–1:00

Say	Clear your desk except a pencil. Work silently and on your own. For every answer, write "I know because..." and use evidence.
Do	Hand out the exit ticket. Start the 8:00 timer. Collect and sort with page 3 (Mastered / Approaching / Beginning).

MISCONCEPTIONS TO WATCH FOR

- "Cold moves into things." Heat moves; objects feel cold because heat leaves your hand.
- "Only moving things have energy." Stored (potential) energy counts too.
- "Radiation needs air to travel." Radiation crosses empty space, which is how sunlight reaches Earth.