

# Core Knowledge Digital Engagements, Science

## Grade 4, Physical Science, Engagement 4

### For the Teacher

#### Overview of Grade 4, Physical Science, Engagement 4

Students work in small teams. Taking turns, teams select a box on the game board that reveals a question. If a team answers their question correctly, they can decide whether to keep the box or give it away to another team. Only then will the contents of the box be revealed. The box can give points to the team or take points away.

#### What You Need

- The means to project this interactive for whole-class viewing
- Grade 4 Core Knowledge Science Student Readers, *Energy Transfer and Transformation* (Students should be allowed to use the book to seek answers. Looking up information on demand is a valuable skill to practice!)
- Markers and scrap paper (with one side blank) for displaying responses

#### Advance Preparation

- Before you begin, preassign students to teams of two or three players.
- Label up to sixteen small squares of paper, each with one letter, starting with A. Include as many lettered papers as you have teams.
- Fold the papers to conceal the letters. Have each team draw a paper to discover their randomly assigned team letter and the order of play.
- **Download these instructions.** The **answer key** appears at the end of the instructions.

#### How to Facilitate

- Beginning with the screen following this one, project the engagement in the largest format possible for whole-class viewing.
- Go over the rules with students before beginning. Emphasize the importance of not shouting out answers when it isn't their turn.
- Use the **Let's Play!** button to advance to the game board, and start with Team A.
- On their turn, a team selects a box. Whether the box will give or take away points is unknown.
- Selecting a box reveals a question and starts the countdown timer.

- The team writes their answer on a piece of paper and shows their response when time is up. They must have their answer ready by the end of the timer countdown. If they are ready early, click the timer to stop the countdown.
- Without revealing the correct answer yet, determine from the answer key below (teacher's eyes only!) whether the team has answered correctly.
  - If the team answered correctly, select the **Reveal Answer** button to reveal the correct response. The team gets to decide whether to keep the unknown points in the box or give the box contents to the next team. (The next team receives—or loses—the points and then proceeds with their regular turn.)
    - If the team answered incorrectly, DO NOT select the **Reveal Answer** button to reveal the correct response. The box goes to the next team so they can attempt to answer the question correctly.
    - If the next team answers correctly, they have the same option to keep the box or give it away.
- After determining which team will receive the contents, select **Open Points Box** to reveal the positive or negative points.
- Click on the scoring team's letter to add or remove the assigned points.
- Carry on with the next team in the lineup, beginning with their selection of a new box.
- If there are boxes left over after every team has had a turn, the team with the lowest score gets another turn. Continue until all the boxes are open.

### Answer Key

- |   |   |
|---|---|
| 1. An energy transformation   the exchange of one form of energy to another form of energy. | 10. They use less energy, produce less heat, and last longer.   |
| 2. Electrical energy is transformed into thermal energy.                                    | 11. He worked with Edison and patented improvements to the filament and wiring inside the bulb.   |
| 3. chemical energy  | 12. He made them last longer, used better materials, and made them more affordable for everyday use.  |
| 4. A and D  | 13. A. alkaline   |
| 5. Solar cells transform sunlight to electrical energy, which can be used to power devices. | 14. His alkaline battery design led to modern batteries used in everyday items like flashlights and remotes.  |
| 6. a process used to develop a solution to a problem  | 15. They designed and built devices like light bulbs and batteries that make use of energy transformations to make life easier, more productive, or more fun. |
| 7. C. how to provide a safe, long-lasting light source using electricity                    | 16. He kept trying even after failing many times.   |
| 8. He was trying to find a material that was inexpensive, long-lasting, and safe.           |   |
| 9. to transform electrical energy to light energy   |   |