Crosscutting Concept
Cause and Effect

- What is the cause? Why did it happen? How did it happen?
- How do the patterns in the data allow you to decide whether _____ caused _____?
- What caused the patterns you observed? How do you know?
- What would you predict would happen if ___?
- How is the situation similar to or different from _____?
- How could you make this happen again?
- What is the effect of the change?

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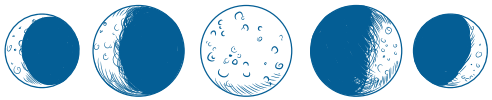

Crosscutting Concept
Patterns

- How is this different than _____?
- How is this the same as _____?
- What do you think will happen next? Why?
- Is this a pattern? Why?
- How are these events related?
- How often does this happen?
- Can you describe the pattern?

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Crosscutting Concept
Structure and Function

- What does this do? What are its shape and physical properties? How do they enable its function?
- What structures are present in _____? What function does each structure have?
- Why does the shape of an object matter for its function? What other properties of the structure might allow it to have certain behaviors?
- What structures does this organism use to meet its basic needs for survival?
- This system performs _____ functions. How do you think the structures support or enable those functions?
- Describe the structures in your engineering solution. Describe the function in your solution. What is important about the relationship between structure and function in your solution that make it a successful design?

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Crosscutting Concept
Systems and System Models

- What are the key parts of the system, and how do they work together?
- Where does the system begin, and where does it end?
- What process is occurring? Can you describe it?
- What energy (or matter) flows into, within, and out of the system?
- If you could control X in the system, would it stop Y? Why or why not?

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Crosscutting Concept
Stability and Change

- What is happening in this system? Is it stable or changing?
- If a system is stable, is it static or in a state of dynamic equilibrium?
- What is the energy or matter that caused the system to change?
- What might cause this imbalanced system to become stable?
- What might cause this stable system to become imbalanced?
- Describe if this change happens slowly or quickly. How do you know?

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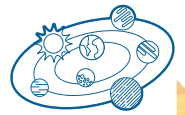
Crosscutting Concept
Scale, Proportion, & Quantity



- What is being measured?
- How can you measure that, and what units will you use?
- Is it big, little, or in the middle? How do you know? What are you comparing it to?
- Is that a long time or a short time? How do you know? What are you comparing it to?
- How does this measurement compare to _____? (ie: Which is bigger/smaller, hotter/cooler, faster/slower and by how much?)
- What scale should be used to investigate the mechanisms at work in this system? Why is that the right scale for this system?
- How could we test whether _____ is changing, even though it looks like it is not?

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Crosscutting Concept
Energy and Matter

- What kinds of material is this object made of?
- What happens to _____ when you put it together with _____?
- Where is matter and/or energy coming from that enters this system?
- What is the fuel: motion, heat, sound, food, light, or electricity? (Energy In)
- What is the system doing? (Energy Out)
- Is the system the same after the energy flowed through it?
- Where does matter and/or energy go that leaves this system?
- How is the energy moving in/out/within/between objects?

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CROSSCUTTING CONCEPT
QUESTION CARDS

THANK YOU!

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Congratulations on taking a big step toward helping your students understand and use the crosscutting concepts! I want to support you with additional time-saving resources. Click the icons above to discover giveaways, lesson ideas, and more! And be sure to visit my Teachers Pay Teachers store to browse hundreds of picture book lesson plans.

Contact me anytime with specific questions or resource requests. I am honored to help you give every child the opportunity for a bright future in STEM!

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