Weekly Lessons/Overview and Goals: Students will be able to identify and explain different forms of energy (12 Day Unit)

TEKS:
4.60 Force, motion, and energy. The student knows that energy exists in many forms and can be observed in cycles, patterns, and systems. The student is expected to:
4.6B Differentiate between conductors and insulators of thermal and electrical energy
4.6C Demonstrate that electricity travels in a closed path, creating an electrical circuit

Unit 3 Vocabulary
Conductor
Insulator
Electrical circuit
Closed path
Closed circuit
Complete path
Open circuit
Travel
switch

Essential Questions:
What materials are good conductors/insulators?
How can we create a complete path for energy to flow through?
What is the difference between a complete and incomplete circuit?

Monday: Sub Plans
Students will read the short book and answer questions in their notebooks. The book will be pushed out through Google Classroom.

Tuesday: Insulators vs. Conductors!
Provide students a tray of items that will successfully illuminate a bulb. In addition, in a ziploc, provide additional items: iron rod, paper clip, popsicle stick and plastic spoon). Have students create a table in their notebook similar to the one below:

Item	Results	Insulator or conductor?
Iron rod		
Plastic spoon		
Paper clip		
Popsicle stick		

Once students have set up their notebooks, have them explore each item at their table and fill in their data table in their notebook.

Wednesday: Independent Reflection question: Think about the last time you drank something warm. Write about the differences between conductors and insulators. What is the difference? What are some examples of conductors and insulators? Why is this important to know when building circuits?

Thursday: Review

- Insulators/Conductors/ Electricity - Show Content Connections video from STEMscopes, stop at following points to let students respond.
  - 29 seconds *What is different about mug that keeps liquids warm?*
  - 1:33 *What are some conductors and insulators of electricity?*
  - 2:09 Are conductors and insulators the same for thermal and electrical energy?
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STEMscopes > 4.6BC > Explore > Part 2> Insulators and Conductors Part 2

- Using the circuit they've already created, students will test each item's conductivity by placing them between the wires.
- Have students test various materials for conductivity. Conductors preserve the circuit and keep it closed. Insulators will interrupt or break the circuit, so the bulb won't shine.
- 2 20 cm wires, insulated with ends stripped, wires with clips work well (per group) You may want to leave the ends unstripped, so students make the connection to conductor or insulator. They will have to strip the wire to reveal the conductor (metal) in order for the circuit to work. 2 Batteries, C or D batteries work well (per group) Materials for testing conductivity, such as a magnet, paper clip, pencil, craft stick, metal spoon, plastic spoon, eraser, beaker, etc. (per group) Cups the students used in the Engage activity to hold materials (per group) Electrical tape (per group)
- **Quick Check-** Conductors and Insulators Quiz

Friday: ****Google Lesson**

Computer Lessons

Intervention:

Intervention/ Reteach (pull small groups)

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- Virtual Investigation w/ electricity
- Concept Review Game
- Guided Practice - Making Closed Circuits - Students will use the Activity Cards and yarn in bag "A" to create four

circuits according to the instructions on the student sheet labeled "Creating Circuits." Once each of the circuits is created, it should be drawn and labeled on the student sheet in box "a."

- Stemscopedia Video: https://app.acceleratelearning.com/scopes/14823/elements/665072
- Concept Attainment Quiz

Differentiation: A variety of activities (application, concrete, and kinesthetic) will be incorporated into both days to engage all learners. Kagan structures will be introduced the first week.