Three Pioneers in Electrical Research: Ben Franklin, Hertha Ayrton, and Thomas Edison

KINDERGARTEN SOCIAL STUDIES

HISTORY

Standards: K.SSH.1-2: Historical Thinking and Skills/Heritage

Overview:

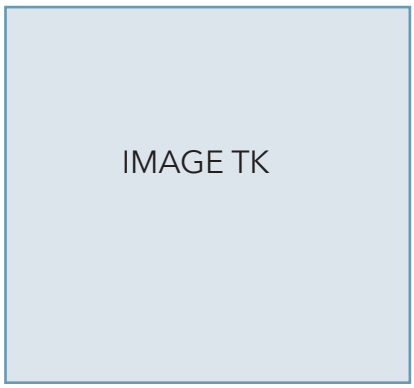
Students will be introduced to three pioneers of electricity: Ben Franklin, Hertha Ayrton, and Thomas Edison.

Outcome:

Students will hear a brief bio of each of these pioneers and draw pictures of them with their inventions.

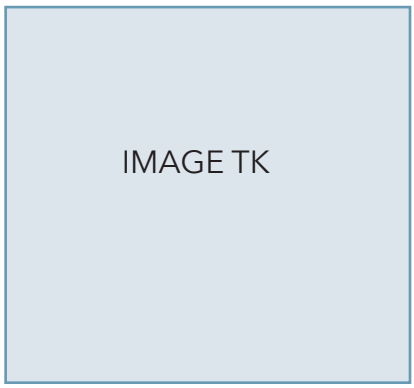
Plan:

- From the enclosed material, tell students about the lives of Franklin, Ayrton, and Edison.
- Show them what they looked like and the image of their inventions.
- Have students draw a portrait of each inventor along with their invention.



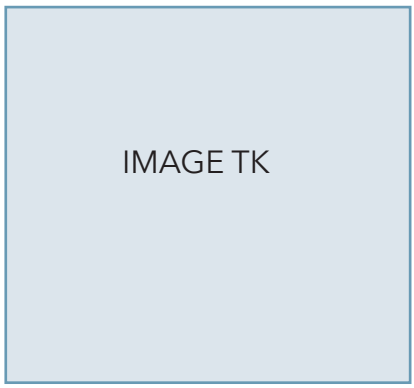
Ben Franklin

Ben Franklin was one of the leaders of the American Revolution. He is also famous for his experiments with electricity. By using a metal key tied to a kite, Ben discovered that lightning was electricity. No one had figured that out before.



Hertha Ayrton

Hertha Ayrton was one of the first female electrical engineers. She was born in England over a hundred years ago and discovered that lights flicker and hiss because air gets mixed up inside the lightbulb.



Thomas Edison

Thomas Edison made over one thousand different inventions including the movies we see, and the recordings we listen to, and lightbulbs.

Oil for All

KINDERGARTEN SOCIAL STUDIES

GEOGRAPHY

Standards: K.SSG.1-2: Spatial Thinking and Skills/Human Systems

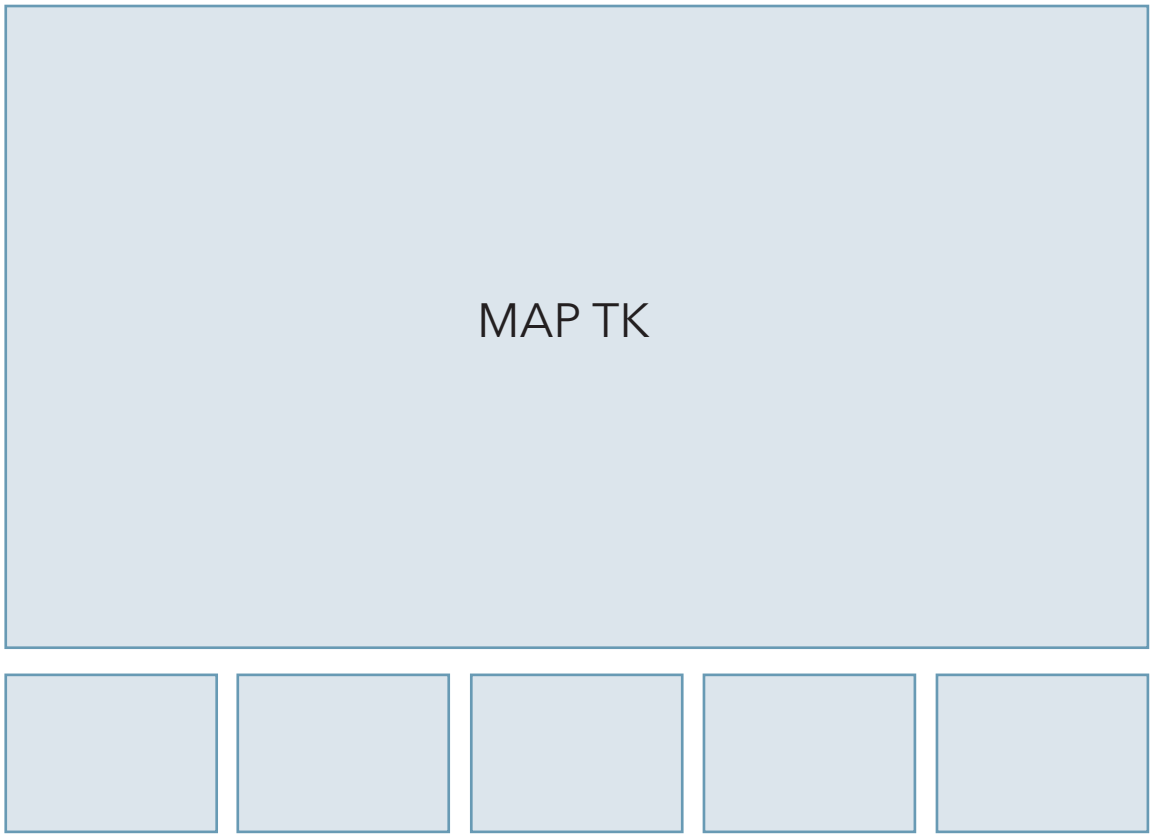
Overview:
Students will gain an understanding that energy comes for the most part from oil-producing countries.

Outcome:

Students will be able to identify some oil-producing countries on a map or globe.

Plan:

- Explain that the power we use for everyday devices such as computers, lights, and television come from an electricity, which comes from energy, which comes from sources such as the sun, wind, or, in most cases, oil.
- Distribute the worksheets and tell students to locate and color in the major oil-producing countries, then to place them in the right position on the world map.



Top 5 Oil-Producing Countries in the World

1)The United States, 2) Saudi Arabia, 3) Russia, 4) Canada, 5) China

Tag Team Energy

KINDERGARTEN SOCIAL STUDIES

GOVERNMENT

Standards: K.SSGov.1-2: Civic Participation and Skills/Rules and Laws

Overview:

Members of unevenly distributed teams of students will run in place until their teammates "tag" in.

Outcome:

Students will see that energy consumption is not always even distributed.

Plan:

- Explain to students that energy is used differently depending on different needs. For example, in colder climates, people use more energy to heat their homes than in warmer climates. Also, some people use more energy because they have more devices that require energy than others. For example, a group of people might have cars, planes, boats, and other things while a different group of people have fewer things.
- Introduce the Tag Team Energy game by dividing the class in uneven teams (for example, a team of two, a team of four, and a team of six, etc.). The rules are that one member of each team must run in place until they want another team member to "Tag" in.
- There is an option to do this for a set period of time, say five minutes.
- The result will be that the teams with more people will either last longer or be able to evenly distribute their running to others in their team so that no one member gets too tired, whereas a team with two people will have to work much harder.
- Students can discuss how different groups of people use energy differently

How Much Energy Does the Classroom Use?

KINDERGARTEN SOCIAL STUDIES

ECONOMICS

Standards: K.SSE.1-2: Scarcity/Production and Consumption

Overview:
Students will learn that energy has a cost.

Outcome:

Students will use the provided energy bill to determine how much energy is used and how much it costs to power a lightbulb.

Plan:

- Distribute the energy bill, which is for $10, and which you can say is the cost of powering the classroom for one week, and it costs $1 for each device.

IMAGE TK

- Explain to students that the cost includes all electrical devices including lightbulbs, TV screen, computers, clocks, the heating/air conditioning system, etc.
- Distribute the worksheet and ask students to search around the classroom and to count how many of each electrical device they find in the room.
- Using addition and subtraction skills, ask students to determine the difference between the $10 bill and the number of electrical devices used in the class. How far under or over that $10 is the class?

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