Outdoor Obstacle Course

WHAT ARE WE INVESTIGATING?

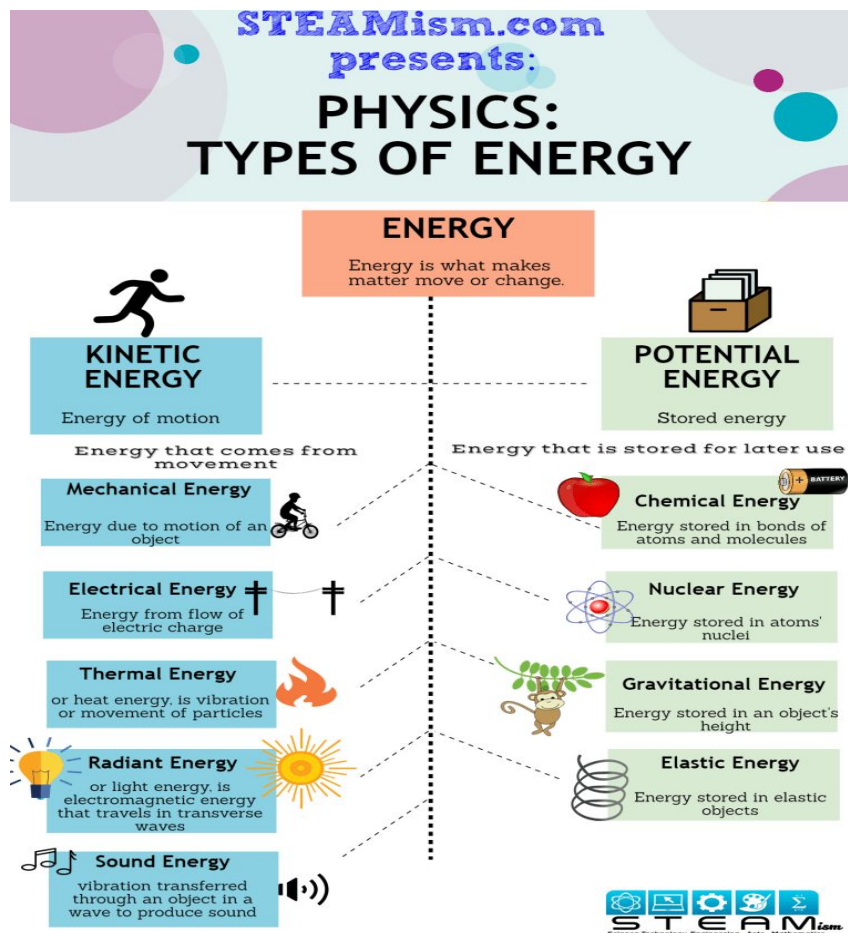Can you build an outdoor obstacle course?

MATERIALS:

- Outside Play Equipment (Hula Hoop, Balls, Goals, Pool Noodles, etc.)
- Strive Academy's Engineering Design Process Handout (found at www.striveacademy.org)
- Pencil or Pen

EXTENSION:

* While completing your obstacle course, you changed energy into many different forms. Where did you get your original energy from?

* Use this picture from STEAMism.com to help determine which forms of energy were involved in your obstacle course:

STEAMism.com presents:

PHYSICS: TYPES OF ENERGY

ENERGY
Energy is what makes matter move or change.

KINETIC ENERGY
Energy of motion
Energy that comes from movement

Mechanical Energy
Energy due to motion of an object

Electrical Energy
Energy from flow of electric charge

Thermal Energy
or heat energy, is vibration or movement of particles

Radiant Energy
or light energy, is electromagnetic energy that travels in transverse waves

Sound Energy
vibration transferred through an object in a wave to produce sound

POTENTIAL ENERGY
Stored energy
Energy that is stored for later use

Chemical Energy
Energy stored in bonds of atoms and molecules

Nuclear Energy
Energy stored in atoms' nuclei

Gravitational Energy
Energy stored in an object's height

Elastic Energy
Energy stored in elastic objects

STEAM
Science Technology Engineering Arts Mathematics

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DIRECTIONS:

1. Gather all of your materials. Our materials are just suggestions - feel free to add other things too!

2. On your handout (found at www.striveacademy.org), fill in the title of your experiment (Outdoor Obstacle Course).

3. On your handout, fill in your hypothesis. You want to answer the question: How fast can I complete my outdoor obstacle course?

4. On your handout, sketch a design of your experimental setup. You will be building an outdoor obstacle course out of any of your outdoor toys. Feel free to use color and label the materials that you will be using!

5. Use your materials to build your obstacle course. Your obstacle course should include:
   - something to jump over
   - something to crawl under
   - something to spin
   - something to hop through

6. Under "Data Collection/Observation", draw a picture of what your obstacle course looks like once it is finished. Feel free to use color!

7. When you are ready, have someone time you as you go through the obstacle course. Under "Results", record your time.

8. Repeat Step 7 three more times. Then calculate your average time by adding up all 4 of your times and dividing it by 4.

9. Answer the "Analysis" questions on your handout:
   - Which part of the obstacle course was the most fun?
   - Which part of the obstacle course was the most difficult to get through?
   - How could you increase your time if you did it again?

** Try the extension activities on the first page for more fun! **