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DIY STEM Challenge

Build a model and explain how it helps scientists make the world healthier, cleaner, or safer

1. **Build a model** of any instrument or technology utilized by scientists, using household items.

2. **Research and explain** how its use makes the world healthier, cleaner, or safer.

3. **Share your project** on Facebook using pictures or a video; use hashtags **#STEMinside** and **#DIYSTEMchallenge**.

Picture Video

Age-appropriate examples (see photos of examples on page 2)

Age 2–5	Age 6–13	Age 14–18
Adults can help early learners use modeling clay, or other available age appropriate materials. Help them gain an understanding the importance of this instrument to the world.	Use household or recycled materials to create a model and include a few sentences explaining your instrument or technology and how it helps the world.	Research an instrument or technology associated with a specific problem or career that interests you. Build a model of it using any materials available. Record a short video presenting your model and how this career helps the world.
A few examples include: microscope, graduated cylinder, thermometer, binoculars, light bulb, syringe	A few examples include: balance, pH meter, centrifuge, radio, telescope, computer, pipette	A few examples include: bioreactor, chromatography column, tissue culture, gel electrophoresis, satellite

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Age 2–5 — Example

Model: Microscope

Compound light microscopes help scientists study brain tissues, creating better concussion protocols making athletes **safer** during and after gameplay.

Collected materials

Model

Age 6–13 — Example

Model: Analytical balance

An analytical balance is an important instrument for making chemical solutions. It allows you to weigh out the proper ratio of chemicals in a solution accurately. Chemical solutions can help make the world **cleaner** as some are used in waste water treatment to neutralize the pH of the water before it reaches the ocean or other bodies of water.

Collected materials

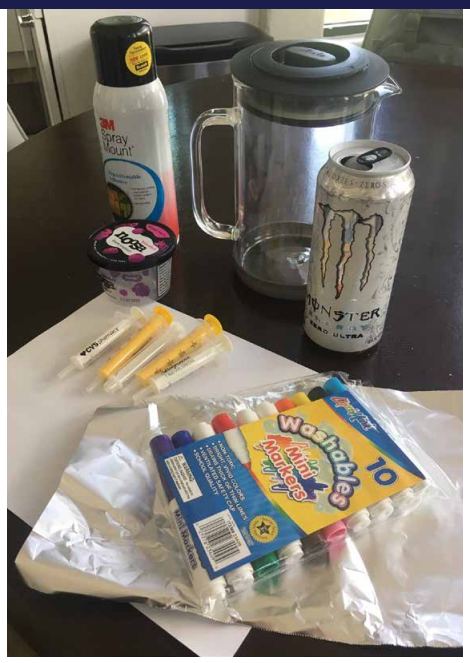
Model

Age 14–18 – Example

Model: Chromatography column

Spoken script in video submission:
The career I am interested in is a pharmaceutical research scientists who creates vaccines to treat disease. A chromatography column is used to isolate different proteins from a large sample containing multiple proteins. Column chromatography can be used in vaccine discovery by identifying which antibodies have the strongest bond to the virus protein, and thus, which would be the most effective for a vaccine. Vaccines make the world **healthier** by preventing infectious disease and creating an immune response in individuals. When someone encounters the virus after developing immunity from the vaccine, their own immune system can defeat the virus prior to it creating symptoms in the individual, reducing overall sickness.

Collected materials



Model

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