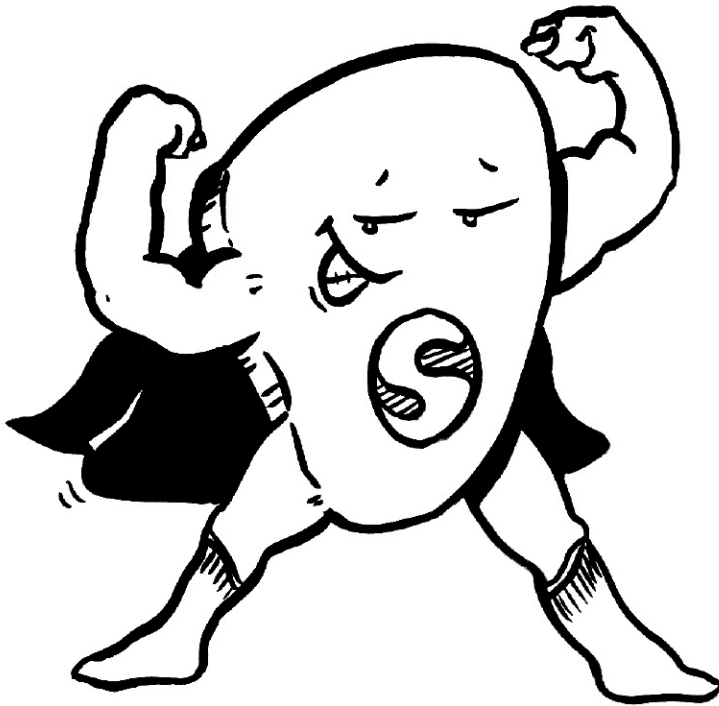


MIGHTY SEEDS



Materials

(for one student or a pair of students)

- Clear plastic cup
- 5 tablespoons of plaster of Paris
- 2 or more tablespoons of water
- Plastic spoon for mixing
- Dropper
- 3 soybeans

DIRECTIONS

How strong are soybeans?

Directions

1. Place plaster of Paris in a plastic cup.
2. Add water and mix. Continue to add drops of water until the mixture has the consistency of a very thick milkshake.
3. Push the soybeans into the plaster until they are covered, then smooth the surface of the plaster.

Questions:

What do you think will happen to the soybeans? Make regular observations. What happens? Why? The next day, add a tablespoon of water to the cup and continue to make observations. What happens? Why?

Observations:

Seeds require moisture and warmth to germinate. In this case the seed absorbs moisture from the plaster mixture. As the seed absorbs water it increases in size and applies pressure to the surrounding plaster. This force, combined with the strength of the germinating sprout, causes the plaster to crack and allows the shoot to grow up through the plaster. This strength and ability to grow in adverse conditions allows plants to survive in a wide range of environments. You may also notice that when water is mixed with plaster the cup becomes warm. A chemical reaction which gives off heat like this is known as an *exothermic* reaction.