

MATTER CHANGES

Grade 2

PHYSICAL CHANGE

OBJECTIVE 5: (Comprehend) changes in the shape of states of matter as physical change by demonstrating and discussing.

VOCABULARY:

gradual

rapid

MATERIALS:

"Popping a Corn Seed" from Science on A Shoestring
The Popcorn Book by Tomie de Paola

PROCEDURE:

Students will pop a kernel of corn.

Teacher will demonstrate the procedure first, conduct follow-up discussion, and provide popcorn to eat.

Students will eat popcorn.

Teacher will read aloud The Popcorn Book.

ACTIVITY: Popping A Corn Seed

SPECIFIC CONCEPTS/SKILLS:

1. Heat helps change some things rapidly.
2. Corn seeds contain moisture.
3. Heat may cause corn seeds to pop.
4. Expansion causes a physical change in the form of the popcorn seed.

MATERIALS (per class)

extra popcorn seeds

popcorn maker (optional)

matches

salt and butter (optional)

cooking oil - a drop placed in each test tube will help distribute heat and facilitate cleaning the test tube.

MATERIALS (per team or group)

1 small test tube

1 clothes pin test tube holder

1 candle

1 2-cm x 2-cm (1 x 1 inch)piece aluminum foil

1 7-cm x 1 7-cm (3 x 3 inch) piece aluminum foil 3 popcorn seeds

eye protection (one set of safety goggles is in each elementary building)

PROCEDURE:

1. Say: "Today we are going to investigate the changes that occur in corn seeds when they are heated."
2. Pass out the student materials. Ask the students to make a cap to cover the test tube by using the small piece of aluminum foil. Demonstrate how to do it. The cover will be used later.
3. Ask: "Are the corn seeds moist or dry?" (They appear to be quite dry.)
4. Have the students put the clothes pin holder around the test tube. A slight rotation of the tube will help get it into place.
5. Have students light candles, drip a little wax on the center of the foil, and set the candle in the melted wax. (optional)
6. Add one drop of cooking oil to each test tube.
7. Say: "Place one corn seed into the test tube and cover it with the aluminum foil. You are going to heat the test tube, but you must keep it about an inch above the flame."
8. Ask: "What will happen if the test tube touches the flame?" (through previous investigations they learned the tube would be blackened and consequently they couldn't observe the change in the seed.)
9. Say: "When heating a test tube, always point the mouth of the tube away from yourself and anyone nearby. Now, place the test tube above the flame, and observe what happens to the corn seed and its surroundings. To keep the seed from burning, you might want to rock the test tube back and forth. (As the seed is heated, moisture will escape and turn to steam. The steam may then condense near the top of the test tube, and the seed will soon pop. When it does, the student should extinguish the flame and remove the popped corn when the tube is cool.)"
10. Ask: What changes have occurred in the corn seed? (Larger, different shape, softer, different color, etc.)

Were the changes gradual or rapid? (Rapid)

What did you do to help make the change? (Added heat.)

Why did the corn seed pop? (The seed contains moisture as observed near the top of the tube. The moisture is enclosed in the tough outer cover of the seed. When the seed is heated, the moisture turns to steam. The steam exerts pressure on the cover. Usually the cover breaks at once and the corn pops open.)

Why don't some seeds pop? (Outer cover is broken and there is no moisture within. Cover has cracks in it, and steam escapes without building up enough pressure to pop the seeds.)

Important Note: Work with small groups of students. Use a clean test tube each time. Do not use too much oil. Point covered top of test tube away from face and use some type of safety shield for eyes. (A set of safety goggles is in each building.) This is a good activity which students enjoy.

Day 4

Read: "Prince William" by Gloria and Ted Rand. The story is about the 1989 oil spill in Prince William Sound, Alaska. In the story a fictitious little girl finds an abandoned baby seal that was left behind on an oil-covered beach. She took the seal to a location where many volunteers were caring for other sick animals that were affected by the oil spill. The seal survives and the oil company cleans up the beach.

After reading the book inform the students on how the safety of the environment is a concern of the oil companies. Examples could be the artificial reefs that are set up, and Coles Levee.

Day 5

Go on a field trip to Coles Levee.