

1.1

DIFFERENTIATION OF EARTH'S LAYERS

How did the Earth differentiate into its various layers?

MATERIALS

- 600 mL beaker
- Hot plate
- Water
- Kosher or canning salt
- Clear pop bottle preforms
- Rubbing alcohol
- Food coloring: McCormick's green
- 1 Styrofoam (plates or bowls)
- 1 bag HDPE, LPDE, PS, or PP plastic pieces
- 1 bag PETE pieces or pellets

DIRECTIONS

1. Place 300 mL of water in beaker. Boil water and add kosher or canning salt, stirring continuously, until it will no longer dissolve. Salt water must be a super-saturated solution.
2. Fill the preform $\frac{1}{4}$ full of super-saturated salt solution.
3. Add rubbing alcohol until the remainder of the container is about $\frac{3}{4}$ full.
4. Add 1 drop of McCormick's green food color.
5. Add 5-9 HDPE, LPDE, PS or PP plastic pieces.
6. Tear off 2-3 pieces of Styrofoam that are small enough to float side by side on the surface.
7. Add 5-9 PETE pellets.
8. Cap and shake the preform for 10 seconds, then let the layers differentiate



REFLECTION

1. How does this preform model the differentiation of the Earth's layers?
2. Which preform layers represent the Earth's core, mantle, and crust?
3. Explain why density and buoyancy were important in the development of the Earth's layered structure.