



### THE SCENARIO

A large glass beaker sits in front of you. It contains something. You are asked to make observations. But of what? Can you see the answer?

### CURRICULUM OUTCOMES

**Gr. 6-10 GCO 1:** Solve problems; Communicate scientific ideas and results; Work collaboratively; Make informed decisions.

**Gr. 6-10 GCO 2:** Understand the nature of, relationship between, and social and environmental contexts of science and technology (STSE)

### Process

### MATERIALS

Per group or demonstration:

- 1 large Pyrex dish/beaker
- 1 medium Pyrex dish/beaker
- Oil with a refractive index of approximately 1.474 to fill large beaker (vegetable oil, canola oil mineral/baby oil, corn oil, others)

### SAFETY & SET-UP

Do not taste any substance in a science lab setting.  
You may choose to wear non-latex gloves.

1. Gather materials.
2. Before students enter the class: Place the medium beaker inside the large one and fill the large beaker with enough oil to fill and cover the medium beaker.
3. Place the beakers at least 1m away from students.

## STEPS TO INQUIRY

### *Problem Solving*

#### OBSERVE

Ask students to record observations without touching the beaker or its contents. Remind students of the difference between an observation and an inference and to only use their senses (Ex: I see a clear liquid ✓, vs: I think there's water/oil in the beaker ✗ ). Observe from 1m for 2-3 minutes before allowing students to take a closer look.

#### QUESTION / WONDER

What do you wonder about what you've observed? Are there other objects or materials that exhibit the same behaviours? What causes this effect? What happens to other objects in the oil (glass beads, magnifying glass, etc.)?

#### EXPLORE

Develop and safely carry out an investigation to answer your wonderings and questions. Remember to only change one variable (independent variable) and have something you can measure (dependent variable). If I change I.V. how will it affect D.V.?

