Grades 3-6

Mystery Boxes: Language & Inquiry Activity

Begin with closed, non-transparent boxes that have been prepared ahead of time with a simple maze and one marble.

To extend the activity, begin by having students create simple mazes in an empty cardboard box (shoe boxes work well). Students use tape and cardboard to arrange one or two 1-2 inch “walls” standing up in the box so that when a marble is rolled it hits the wall and must change direction to continue moving.

For the exploration:

Students work in pairs or small groups to explore one box (without looking inside.)

The boxes remain closed! Students gently tilt box and listen as marble moves. Take turns observing the box and shifting box to explore the way the marble moves within the box.

No violent shaking or hard pressure – boxes can break

1. Report out your observations (discuss as a group). Students can discuss, make notes, sketch ideas.

2. Your challenge: Figure out what the box would look like inside if you were able to open it.

3. Draw diagrams and write descriptions in their notebook to record their ideas and observations.

4. Come to agreement with your group and draw your model on the provided template. How confident are you?

5. If whole class is using same box (all boxes are same inside), combine the smaller groups into larger groups, and compare the templates and ideas. Discuss within the larger groups how their ideas are similar, how they are different. Students should support their “claim” with an explanation based on evidence drawn from their observations.

If groups have different boxes, have two small groups trade boxes and templates. Does the second group agree with the first group’s idea about what the inside of the box looks like?

Why or why not? Can they draw a different idea and support that claim with evidence.

7. Within the larger groups, discuss and compare ideas.

Conference with your larger group. Your goal is to work together to come up with a model for your box which you can agree on.

8. Come to consensus and redraw your model and present.

9. How confident are you?