

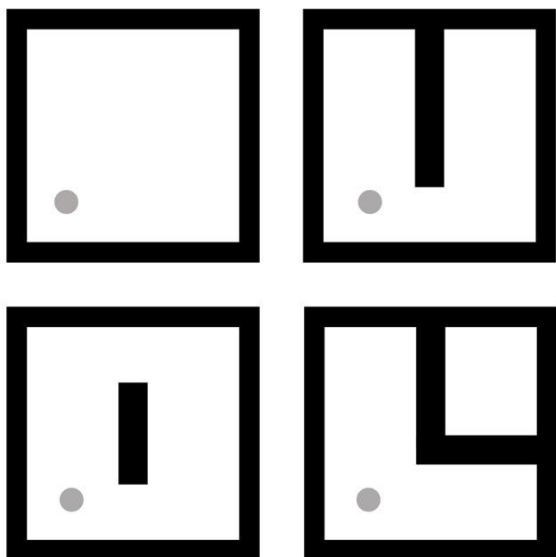
## Worksheet 1: Making theoretical predictions

Imagine that you are given a mystery box. This is a box made from LEGO, with an unknown internal structure (i.e., the inside of the box is a mystery). Your task is to work out the internal structure of the mystery box... but you are not allowed to open it.

How will you work out what is going on in the box without looking inside?

### Activity

The theory of LEGO mystery boxes predicts that the mystery box will have one of the four mystery box structures shown below. The grey circle represents a small ball inside the box.



- 1) Examine the four theoretical models.
- 2) In your team, discuss the differences between the proposed models.
  - How would these differences affect the movement of the ball?
- 3) Devise experiments to test the theoretical models. As you devise the experiments you should also discuss the outcomes of the experiments.
  - What would happen during the experiment if a particular model were correct?
  - If this does not happen, can you suggest an explanation and/or a new model?