

# Clear Cube Exercise

## Lesson 3: Orthocubes & Lesson 4: 2D to 3D

### Preparation Before Class

#### Items Needed:

- Clear cubes (4"x4")
  - E.g., [https://www.amazon.com/LaRibbons-Transparent-Wedding-Shower-Favors/dp/B072F3TSWY/ref=sr\\_1\\_3?s=home-garden&ie=UTF8&qid=1534199019&sr=1-3&keywords=Transparent+Clear+Favor+Boxes+4x4x4](https://www.amazon.com/LaRibbons-Transparent-Wedding-Shower-Favors/dp/B072F3TSWY/ref=sr_1_3?s=home-garden&ie=UTF8&qid=1534199019&sr=1-3&keywords=Transparent+Clear+Favor+Boxes+4x4x4)
- Snap cubes
  - E.g., [https://www.amazon.com/Learning-Resources-Snap-Cubes-Set/dp/B000G3LRA8/ref=sr\\_1\\_5?ie=UTF8&qid=1534199142&sr=8-5&keywords=snap+cubes](https://www.amazon.com/Learning-Resources-Snap-Cubes-Set/dp/B000G3LRA8/ref=sr_1_5?ie=UTF8&qid=1534199142&sr=8-5&keywords=snap+cubes)
- Double sided foam tape
- Dry erase markers
- Paper towel for erasing



#### Build the Cubes:

- Create a bottom floor consisting of nine white snap cubes that get taped to the base of the plastic box using the double sided sticky tape.
- To ensure the bottom floor created above is secure, you might want to add additional tape that connects from the base of the box to the sides of the snap cube floor.
- Build enough cubes so each pair of students has a cube, plus a few extra

## Activity

- Students work in pairs
- One student in the pair creates a shape made of 5 snap cubes and places it on the white snap cube base in the clear box. The student closes the box with their shape inside and passes it to the other student.
- Using a **dry erase marker** that is a different color than the snap cubes, the other student draws all views (front, left, right, and top views) of the shape on the plastic cube. The student then writes the number of snap cubes on the clear plastic cube and has their partner check the drawings.
- An instructor or TA must also check the drawn views. Otherwise, the pair of students that they give it to will be confused (even good students need to be checked since they get overconfident).
- Students take out the shape they used to create these views and hide it.
- The pair of students then give another pair of students their clear cube with orthographic views.
- The 2<sup>nd</sup> pair of students build the original shape based on the orthographic views.
- Move up to 6 and 7 blocks
- For the next week have them repeat this activity using an increasing number of blocks up to about 10 snap cubes. Adding just 1 block can be difficult, especially since students always try to make it challenging for their classmates.