



3. What are the major structural and functional barriers a cell must overcome? Then brainstorm some ways the cell might overcome the barrier.
- Structural barriers refer to the cell parts
  - Functional barriers refer to the ability of the cell to work and do its job

If you like, use the chart below to organize your thoughts. Or you might choose to design a web (mind) map or another way to get your ideas down on paper. Don't worry about what the "right" answer is. The purpose of this activity is problem-solve. Any possible solution is a good answer.

Structural	Functional	Description of Barrier (Design problem)	Possible Solutions

### ***Playtime: Making Models***

Gathering available materials

- assign objects a cell structure
- manipulate the pieces to simulate a possible solution to one design problem

Play with the pieces and "role play" possible solutions to the design challenges you came up with.

**PostLab: Determining Design Success** *Pick one design problem you decided to tackle, and use it to answer the following questions.*

4. Draw a picture (or take a photograph) and label the structures/parts of the cell.
5. In what ways is your model successful in addressing the challenge?
6. In what ways does your model fall short in solving the design challenge?
7. What was your biggest failure in this design challenge? What did you learn from it?
8. Research the answer, and find out what scientists know about how cells address the design issue. Compare and contrast this to your model.

