

### **Factory Cell Network Teacher notes**

**Engage:** This lesson can and is suggested to be done via group interaction. Have students work in teams to identify the components of the factory. They are to do this while watching a video *Pez Factory Tour* (available on youtube <http://www.youtube.com/watch?v=KU7WSS6SUA>). You could make a group challenge or set requirements as to how many components the students need to find. Once the students complete the task have them come together as a class and list all the different components that they found. During this you might want to guide them to make sure they get all of the necessary parts for when the connection between the factory and the cell is made.

---When you watch the video you can guide the students to get these components: Boss (nucleus), packagers (Golgi), machinery or workers (ribosomes), transport (ER), raw materials (amino acids), products (proteins), boundaries and openings (semi permeable plasma membrane), varieties (different proteins), electricity (mitochondria), engineers (nucleolus), Pez packaging (vacuole), garbage disposal (lysosome), air (cytosol)... \* (but make sure you don't mention the cell parts yet)

Have students brainstorm other types of similar situations: schools, farms, engines, etc...

Have students now build a network showing the relationships between the components they identified in the video. Make sure they save this network because they will be using it in the future.

\*At end talk about cell: pose question "Why would we use a factory exercise as an introduction to cells?"

**Explore 1:** The objective of the first explore is to have students take qualitative and quantitative observations of different types of cells. This should be done after you introduce the three parts of a cell.

\*Microscope cell activity: choose any introductory cell activity that you already use.

Have students record all observations: when done have students form a class group again and list some of the observations that the students have made.

**Explain 1:** This can be done by formal lecture on section 7.1 in the text...

**Explore 2:** this activity is to help students visually identify different cell organelles by shape. \*there are many ways to do this activity: it can be done as a bingo game or just a matching activity. Students will need a large picture of generalized cell (included). They will be seeing different microscope images of organelles (included). Their job is to match the organelle that they see with the correct organelle on their picture.

**Explain 2:** This can be done by formal lecture on section 7.2 in the text...the objective is to have the students learn the organelles and their functions.

**Elaborate:** In this phase students are to relate the structure and function of the cellular factory to the cell phone network. They are to answer a series of questions that should drive their understanding of cell structure to a deeper level. Students will need a copy of the cell phone network as well as the factory network they created in the first engage phase. They can work groups or as individuals but at the end of the period make sure to gather everyone to have a class discussion about their answers.