

## 2013 Materials and Manufacturing Summer Teacher's Institute

Unit of Study – Cells

Classroom: 7<sup>th</sup> grade science

Number of students – 24

Grade level: 7<sup>th</sup> grade science

- **Major Curricular Concept**
  - Cells are the basic unit of structure and function
- **STEM Applications**
  - S=Cell Physiology
  - T=Protein, DNA, RNA synthesis
  - E=Programming of cells-directions for what protein to make and when to make it
    - Manufacturing=actually making the RNA, DNA, proteins
  - M=Scale, how many, how long does it take
    - Give problem: lump sum \$1million or a penny that doubles each day
    - Exponential growth
- **State Standards Reference**
  - 7.2.a

### **What students will know at the end of the lesson?**

SWBAT describe cells at the basic unit of structure and function (building blocks)

TSW describe cells as small parts

TSW know that cells have organelles w/specialized functions that carry out all the processes of life and maintain homeostasis

Compare and contrast plant and animal cells

Differentiate between different sizes of organelles

Analyze different jobs in a factory and connect them to the organelles in a cell

Design a 3D model of a plant or animal cell with organelles

### **Class Activity**

Video of Cells-You Tube (Harvard Cell Animation mp4)

Cells Alive.com Interactives—Cell models—Take me to the plant and animal cell animation- students computers to examine internal structure of organelles and come up with real life comparisons for relative size

### **Materials**

Access to YouTube and ability to project on screen for class

Computers-individual or groups of 2

### **Other Factors: Is there anything special**

Internet

Teacher computer project to TV or screen

### **Observation notes**

Difficulty with new vocab in Cells alive

Confusion navigating web site

Pairs on computers

### **Other comments**

Manufacturing factory analogies to organelles/cell

### **How will student success be measured?**

Share Out, Exit Cards

Edible Cell/3D model

Short story/childrens book on a “Journey through the cell”