NAME_____

ENGINEERING DESIGN

Directions: Using the attached PowerPoint, complete the notes below.

Slides 27-31

WHAT IS A MODEL?

- A _____ is a _____ of something in _____.
- A _____ is often a _____ -_____ structure. A model does _____ have to be a _____ structure. It can be an _____, _____ or _____. In fact, equations, diagrams and drawings are often used to model _____ ideas – such as _____, _____ and _____ - in a _____ way.
- _____ are important to engineering _____. Models are used to _____ and _____ _____ to problems.
- A _____ is a type of model. It is the first _____ of a solution. A _____ is _____ and _____ over and over again before _____ the _____ solution.

DEVELOPING MODELS

- What two characteristics must a model have?
  1. _____
     _____
  2. _____
     _____

USES FOR MODELS

- A _____ is used to _____ ideas and solutions that are too _____ or too _____ to visualize. For example:
  - A model of the _____ _____ helps you study the _____ that span more than 7.5 billion kilometers in space.

- A model of an _____ helps you study the extremely _____ particles that make up all _____ in the universe.

- A _____ can help you better _____ what you are studying. _____ objects, solutions and processes can make it _____ to _____ those ideas.
- _____ are especially helpful to _____. Models help _____ design _____ to problems. They make it possible to _____ solutions before _____ them. Models save engineers _____, _____ and _____.
    - For example, an engineer that is responsible for constructing a _____ can build and test a _____ of the bridge FIRST before actually _____ it. In this way, he can _____ the design – to make it look different or to address complications in its features - before using _____ to build the actual thing.