

## Integrating Engineering and Literature: Lesson Ideas

### Lesson One

Introduction to engineering: Does anyone know an engineer? What do engineers do?

Give simple definition: Engineers **design** things (and ways to do things) to solve problems that people have. They have to know a lot of **science and math** to make their designs work.

*Vocab - design, science, math, engineer*

Give some examples of things that are in the classroom that kids are very familiar with:

- 1) Show unsharpened pencil - What problem needs to be solved so that you can use the pencil? What did engineers **design** to solve the problem?
- 2) Show several separate sheets of paper that I want to make into a book. What problem needs to be solved to put the book together? What did engineers **design** to solve this problem?
- 3) Show a large piece of paper that I want to use to give smaller pieces to my friends. What problem needs to be solved so I can divide the paper with my friends? What did engineers **design** to solve the problem?

Tell the class that they are going to be engineers by finding problems in a story we read together and thinking of ways to solve the problems...**solutions** to the problems. *Vocab. - solutions*

First reading of the story. Some possibilities:

Three Pigs

Who Sank the Boat?

Goldilocks

The Mitten

The Carrot Seed

A Visitor for Bear

Make Way for Ducklings

## **Lesson Two**

Reread the story.

Create a simple story map on a large chart and fill in with the class, using the following vocabulary on the chart but clarifying verbally with descriptive language.

Setting (where the story takes place)

Characters (who are the people/animals in the story?)

Plot (what happens in the story/story sequence/main ideas)

Problem(s)

Solution(s)

## **Lesson Three**

Review the story elements on the chart.

Focus on the problem(s) on the chart. Are there any more problems that the characters in the story have? Review the story sequence while looking at the pictures to think of other problems that the characters have. List these.

Choose a problem to solve. Children might choose problem or teacher might choose.

*May need to insert a mini-lesson re brainstorming here, depending on children's experience.*

Brainstorm possible solutions to the identified problem and list them on a large chart. Encourage creative thinking! Invite children to give teacher more ideas during the day if they think of something.

## **Lesson Four**

Options:

- 1) Teacher may choose a solution to work on and materials to use for all children.

- 2) Children may vote on a solution, given *requirements* (i.e. must be something you can really build with materials we can get, must be safe) by the teacher.
- 3) Children might be divided into small groups. Each group decides on a solution, given *requirements* by the teacher.

In small groups, children draw (and label) plans for creating or building the solution. With guidance from an adult, they compare and discuss plans, deciding on the best plan (possibly combining ideas from different plans).

Children may need to bring materials from home for the construction stage.

### **Lesson Five**

Small groups build solutions. Groups share solutions with the class.

Writing extension: Children can dictate how they built their solutions to their adult helpers...problems they encountered, how they solved them, how they worked together, etc.