



**STEM GEMS ARE SHORT DISCOVERY-BASED EXPERIENCES.** They involve little or no materials and may be easily implemented by educators who are not STEM specialists. Each STEM Gem is designed to engage young people in active experiential learning. The activities begin by setting up connections to prior knowledge, then a hands on activity provides new concepts and the opportunity to design experiments to answer any questions the kids discover. Finally, a connection to a different scenario for the concept is provided to help cement and evaluate the learning.

STEM Gems are experiences are designed to be used with kids of all ages. Younger children should be focused on one idea or concept and should perform the activity as a collective group with prompts and directions from the teacher. With older youth, the teacher should act as a facilitator. The older youth should be set up to work independently in small teams and encouraged to ask questions and try out their own experiments to answer them. Each team should report back on their findings, so a consensus around the concept is reached.

### **Each STEM Gem is presented in an easy to follow lesson plan:**

#### **BIG IDEAS AND SCIENCE TALK**

Central concepts and key words to give the adult the science background for the experience.

#### **ENGAGE**

Open ended questions to stimulate discussion and generate connections to prior knowledge.

#### **WHAT YOU WILL NEED**

A list of the materials.

#### **BEFORE YOU BEGIN**

The preparation needed for the activity.

#### **EXPLORE AND EXPERIMENT**

The directions for the experience designed using open ended questions that focus the children on discovering answers.

#### **MAKE THE CONNECTION AND EXTEND AND EVALUATE**

Connections to other scenarios that use the same concepts and related question(s) or additional activity to evaluate knowledge.