

Invention and the Creative Process Resource Package

STEM Activity Ideas and Lesson Plans

Area 1: Activity Ideas

This is a sampling of ideas; additional activity ideas are available with the teacher tools included with individual videos in this resource package.

- ❖ Design and build a tall structure using popsicle sticks then do same with a house of cards, and a tower of cups. Discuss and redesign using what has been learned. Now design the tallest free-standing structure using only pipe cleaners. What are the challenges with the pipe cleaners that were not there with the other items? How did the type of material used to build the structure necessitate changes in how the structure was built and what the structure looked like? What does this experience tell you about architects and engineers and how their job might change depending on the materials used? Present your conclusions in a written report or an oral presentation.
- ❖ Design a town for a population of 10,000 people. Research the ideal amount of space per person and other elements needed for a town. Use graph paper to draw to scale a diagram of your town. Write a report explaining the justification for the choices of what is in your town.
- ❖ Test the adhesive properties of Post-it notes or tape. Choose a surface to remove the Post-its or tape from. Discuss variables. Plan a way to test the adhesion and complete the experiment 3 times. Keep data in a table and interpret the data and report.
- ❖ Study what variables cause a ball to travel the farthest. Test playground balls, baseballs, and golf balls. Make a table with the weight, diameter, circumference, material, and surface differences (like dimples) of each. Select a flat surface location to bounce each ball and measure the height of each ball's bounce. Bounce each ball the same amount of times (minimum of three) and determine the average bounce height for each. Which ball bounced the highest? Why do you think it did? How do you think the results would change if you threw each ball rather than bounced it? How do you think the results would change if you hit each ball off a tee or similar surface? Extend your learning by researching what designers have done to make each ball travel as far as possible for its particular purpose.

Area 2: Lesson Plans

A sampling of lesson plans will be added to this document soon. Additional activity lesson plans are available with the teacher tools included with individual videos in this resource package.

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