Lesson Plan Subject: Algebra/Geometry/Physical Science (8th-12th grades)

Lesson Focus: Brainstorming Activity **Time:** 30-45 minutes

Materials: Powerpoint: " A Kick in the Seat of the Pants" - http://www.slideshare.net/fms1/a-kick-in-the-seat-of-the-pants-3581842

(Describes the thinking process, how to "think outside the box")

Paper/Pencil

Timer Device

Preparing the lesson:

Preview the Powerpoint to learn or inspire teacher facilitation for promoting creative thinking. Selected slides might be shown to students, as deemed appropriate to age/maturity of audience.

Divide students into small groups (4-6 students)

Teaching the lesson:
What is an engineer? What kind of people are engineers?

Engineers are PROBLEM SOLVERS!
Many people think that they just do repairs, but that is seldom the case.

In order to solve problems, they must have creativity and imagination.

Pretend you are 5 years old…..What is a stick?

Sample answers might include:
Wand
Tent pole
Sword
Leash
Scepter
Oar
Fishing pole
Broomstick

Now you are 12 years old……you see a stick……and it is just a stick!

You've lost your imagination!

Let's get it back!

2 Rules: There are no dumb ideas and no negative talk!

TASK 1:
Generate as many solutions to the problem, as possible, in the time allowed. (5 minutes)

I have a piece of string. I am going to throw it away.
You say, "NO! It can be used as a _____."

After 5 minutes, record the number of solutions for each group and have them share the one idea they feel is the craziest.

Not long ago, people would have thought that a cell phone or a mouse was a crazy idea.

The founder of IBM said that computers would never work, because the US only needs two- one on the west coast and one on the east coast.

Don't be afraid to say any idea, no matter how crazy. Try to come up with more ideas than in round 1. You have 5 minutes.

TASK 2: New Problem

I have a lump of metal. Instead of throwing it away, we could
_____.

After 5 minutes, record the number of solutions for each group and have them share the one idea they feel is the craziest.

TASK 3: Application to Incline Plane Activity

Objects (ball, car, person, etc.) go down the incline plane. How do you make them stop?

After 5 minutes, record the number of solutions for each group and have them share some of their ideas.

Now object is at the bottom of the ramp (incline plane). How do you get them back to the top?

After 5 minutes, record the number of solutions for each group and have them share some of their ideas.

Assessment: Award points based on improvement. (See Sample Score Sheet.)

Closing Activity or Extension: In future activities, encourage students to look for multiple solutions to problems.