Innovation- Think outside the Box
Mobile Museum Lesson Plan
Silicon Forest Presentation

Description: Students will be introduced to the idea of innovation, a key ingredient in the history of the high tech industry in Washington County. Students will learn steps to brainstorming and solve a problem in class.

Objectives:

- Students will learn/review the concept of brainstorming
- Students will apply brainstorming to solving a problem

Oregon Educational Standard:

3.4D.1 Identify a problem that can be addressed through engineering design, propose a potential solution, and design a prototype.
5.4D.1 Using science principles describe a solution to a need or problem given criteria and constraints.

Materials:

- Brainstorming Rules (Included below)
- Chalkboard
- Classroom objects
- OPB Video The Spirit of Tek (Available online)

Time: 1 class period (25-55 minutes, plus extension)

Method:

1) Ask students if they know what brainstorming is.

2) Create a list of ideas on the board.

3) Share Alex Osborn’s definition of brainstorming & rules:

What is Brainstorming?
Brainstorming is a process of spontaneous thinking used by an individual or by a group of people to generate numerous alternative ideas while deferring judgment. Introduced by Alex Osborn in his book "Applied Imagination," brainstorming is the crux of each of the stages of all problem-solving methods.
Rules for Brainstorming

- **No Criticism**
  Allowed People tend to automatically evaluate each suggested idea--their own as well as others. Both internal and external criticism are to be avoided while brainstorming. Neither positive nor negative comments are allowed. Either type inhibits the free flow of thought and requires time which interferes with the next rule. Write each spoken idea down as it is given and move on.

- **Work for Quantity**
  Alex Osborn stated that "Quantity breeds quality." People must experience a "brain drain" (get all the common responses out of the way) before the innovative, creative ideas can surface; therefore, the more ideas, the more likely they are to be quality ideas.

- **Hitchhiking Welcome**
  Hitchhiking occurs when one member's idea produces a similar idea or an enhanced idea in another member. All ideas should be recorded.

- **Freewheeling Encouraged**
  Outrageous, humorous, and seemingly unimportant ideas should be recorded. It is not uncommon for the most off-the-wall.

4) Apply the rules of brainstorming to a challenge (Ideas below)
   a. Grab an object from the classroom and ask students to brainstorm as many new uses for that object that they can think of to see how many new things the students will discover.
   b. Using literature, ask students to create a new ending to a story, change a character or situation within a story, or create a new beginning for the story that would result in the same ending.
   c. Put a list of objects on the chalkboard. Ask your students to combine them in different ways to create a new product.
   d. Let the students make their own list of objects. Once they combine several of them, ask them to illustrate the new product and explain why it might be useful.

5) Wrap-up: ask students how brainstorming helps inventors create new products.

6) Share the Google Rule: Successful companies must spend 70% of time on core business, 20% on expanding the core, and 10% on thinking completely outside the box.

**Extension:** Show the OPB Spirit of Tek Video in class (available online) and draw parallels between brainstorming and the culture of production at Tektronix.

*The Silicon Forest Mobile Museum presentation will touch on the history of companies in the Washington County area such as Tektronix.*