Anderson School District 5 STEM Institute- Plan Chad Caldwell, Christina Weir, Jennifer Reeves, Kinsley Durham

Big Ideas:

- Demonstrate how early humans adapted to and modified their environment.
- Tools and Techniques
- The role of creativity and problem solving
- Engineering design
- Cross curricular learning
- Use of technology in prehistory

Goals and Objectives:

- Create a prehistoric tool and simple machine and explain their role in helping humans adapt to and modify their environment

Standards:

- Science standards on simple machines
- Math standards on measurement and scale
- English standards on reading and writing informational texts
- Social Studies standards on prehistory

Timeline:

- Beginning of the year
- 2 week unit
- Introduction of the big idea in social studies
- Lesson in reading on prehistoric cultures
- Brainstorm prehistoric tasks in writing
- Science lesson on simple machines
- Create the tool to help with the prehistoric task
- Create the simple machine in science with lego and k’inecks
- Testing in modifications of tools and simple machines
- Presentation of tools and simple machines to peers (“Tournament of Tools”)

Assessments:

- Creating and testing their simple machines in science
- Journaling throughout the process
- Scaling and measurement of the tools/machines
- Creation and testing of the tools in social studies using a rubric
Resources:

- Natural resources from outside
- Informational texts
- Legos and K’inects sets
- Journals
- Rubrics
- Measurement tools
- Objects to test (provided by students)
- Youtube
- Teachertube
- Streamline

Classroom Preparation:

- “Tournament of Tools” reservation in a designated spot in the school
- Changes in arrangement of classroom – premade pairs for tools and simple machines
- Supply of legos and k’inects

Learning Experiences:

- Lessons on simple machines -the teacher will discuss the different simple machines such as levers, pulleys, and inclined planes and how these help accomplish certain tasks from past and present times (Videos and images of different types)
- Lessons on prehistoric cultures-the teacher will introduce the way of life, and compare Paleolithic and Neolithic (Videos and images of different types)
- Engineering the tools and simple machines
- In writing, compare and contrast modern and prehistoric technology, Paleolithic and Neolithic cultures, identify and note prehistoric tasks and how they were accomplished, revision of simple machines and tools-what worked and what didn’t work?
- Presentation- learning about communication and collaboration with peers

Example

Name of the Problem: Tournament of Tools

Name of Author: Lakeside Middle School

Content Area: Primary focus- Science and Social Studies

Unit: Simple Machines/Prehistory

Standards:
Social Studies 6-1.1 and 6-1.2 Prehistory

Science- Simple machines

Reading- on informational texts

Writing- informational texts, comparing and contrasting, descriptive, research

“Big Ideas”

• Demonstrate how early humans adapted to and modified their environment.
• Tools and Techniques
• The role of creativity and problem solving
• Engineering design
• Cross curricular learning
• Use of technology in prehistory

Essential Question: How did technology help early humans adapt to and modify their environment?

Scenario: They’re in ancient times, and they performing a task with their selected tool. They’re scientists creating their own models of simple machines that can also perform a task.

Materials and Resources:

• Natural resources from outside (provided by students)
• Informational texts
• Legos and K’inects sets
• Journals
• Rubrics
• Pencils
• Measurement tools
• Objects to test (provided by students)
• Youtube
• Teachertube
• Streamline

Procedures:

1. *Science will be focusing on the simple machines lessons and relating it to prehistory
2. After Social Studies lesson and reading on prehistory, students brainstorm tasks in their journals that would be required for survival in Paleolithic and Neolithic times.
3. For each task, the students must describe a tool that would help to accomplish that task and relate it to the simple machines learned about in science.
4. Students must choose one of these tools and create a blue print using set measurements with a scale.
5. Students will use their journals to brainstorm materials and then gather those materials from outside.
6. Students will create a working model of their tool using only materials available in prehistoric times. Ex: rocks, sticks, grass, bones, vines, clay, etc.
7. Students will test their tools and write what worked and what didn’t in their journals while also providing what they will do to improve it.
8. Students will make modifications of the tool according to the plan.
9. The “Tournament of Tools” will take place in which students will present their final product amongst their peers.
   *Students will complete an entry in their journal on the comparison of prehistory and current tools and simple machines

**Deliverables:**

- Tools
- Simple Machine Models
- Journal Entries
- Blue Prints

**Parameters:**

- The tools must be made of natural materials and follow the rubric
- Simple Machines must be created using the legos and k’necks
- Students must complete journal entries on the specific times allotted

**Assessment:**

- Creating and testing their simple machines in science
- Journaling throughout the process
- Scaling and measurement of the tools/machines
- Creation and testing of the tools in social studies using a rubric