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**CODE/MOE/UOIT Makerspaces Project**

**Lesson Plan: Grade 6 Science**

**Space: Space Pod Project**

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| **BIG IDEAS:*** **Technological and scientific advances that enable humans to study space affect our lives.**

**Lesson Objectives:** * **To allow students to build open important life skills through collaboration, creativity and innovation**
* **To allow students to be involved within inquiry and problem based learning**
* **To allow students to encourage application of new and prior knowledge and skills to further develop their interests and engagement through learning**

**Overall Science and Technology Curriculum Expectations:*** **assess the impact of space exploration on society and the environment**

**Specific Science and Technology Curriculum Expectations:**2.3 - use scientific inquiry/research skills (see page 15) to investigate scientific and technological advances that allow humans to adapt to life in space3.3 **-** explain how humans meet their basic biological needs in space |
| **Learning Goals:*** **We are learning about strategic developments enabling for space exploration and transportation across the galaxy**
* **We are learning how humans adapt to life in space**
 | **Success Criteria:**  **- I can identify properties that make space exploration and transportation possible****- I can describe how humans meet their basic biological needs in space** |
| **Lesson Overview:****As you construct your space pod/ship/sleeping quadrants, you must continually investigate the uses of current space exploration vehicles and techniques used to enable the flight and transportation.**  |
| **Materials and Technology:** * Anything (cardboard, plastic, paint, ball, wood, insulation, wires, etc…)
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| **Student Accommodations/Modifications:** * **Assistance/Clarification when necessary**
* **Can challenge students to try to be creative and innovative; thinking outside the box**
* **They provide their own materials**
 | **Lesson will be differentiated by:*** **Content, specifically:**
* **Process, specifically:**
* **Product, specifically:**
* **Environment, specifically:**
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| **MINDS ON: Getting Started** |
| Design and Planning:* How will the pod fly; what designs are specific to enable this?
* Can the student identify how the pod flies, and the uses of different materials rather than others?
 | During this phase, students may: • participate in discussions; • question the teacher and their classmates;  |
| Describe how you will introduce the learning activity to your students. What key questions will you ask? How will you gather diagnostic or formative data about the students’ current levels of understanding? How will students be grouped? How will materials be distributed? * Show other projects similar to what they should be making, however, encourage not to copy and replicate the example
* Assigned into groups
* **Allotted time to finish the task**

**Assessment may be done through observation, conversations and/or rubric/checklist for the final product.** |
| **ACTION: Working on it** |
| During this phase, the teacher may: • ask probing questions; • answer students’ questions (but avoid providing a solution to the problem);  | During this phase, students may: • represent their thinking (using numbers, pictures, words, manipulatives, actions, etc.);   |
| Describe the task(s) in which your students will be engaged. What misconceptions or difficulties do you think they might experience? How will they demonstrate their understanding of the concept? How will you gather your assessment data (e.g., checklist, anecdotal records)? What extension activities will you provide? * Challenge students to be innovative, and creative
* Question why it works, and if you change something, why it will or will not continue to work?
* Question the design of the space pod.
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| **CONSOLIDATION: Reflecting and Connecting** |
| During this phase, the teacher may: • encourage students to explain a variety of learning strategies; • ask students to defend their procedures and justify their answers;  | During this phase, students may: • share their findings; • justify and explain their thinking;  |
| How will you select the individual students or groups of students who are to share their work with the class (i.e., to demonstrate a variety of strategies, to show different types of representations, to illustrate a key concept)? What key questions will you ask during the debriefing? * Questioning the practicality of their space pod involving its success or failure? Have the students elaborate and sell their idea on how it will, and why it will work.
* What they should have changed to make the space pod better, or make it more functional?
* What were other factors that the students did not think of (living quarters, electrical wires, etc…)
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