

**CODE/MOE/UOIT Makerspaces Project--Lesson Planning Template**

**School Board: Huron Superior Catholic District School Board**

**Grade(s): 1**

**Subject(s): Science—Hot Air Balloons**

|  |  |
| --- | --- |
| **BIG IDEAS:**  **Objects and structures have observable characteristics and are made from materials with specific properties that determine how they are used. In this lesson, students will use Makerspace material to create a structure related to a story.**  **Curriculum Expectations:**  **OVERALL:**  **Students will investigate structures that are built for a specific purpose to see how their design and materials suit the purpose.**  **Students will demonstrate an understanding that objects and structures have observable characteristics and are made from materials with specific properties that determine how they are used.**  **SPECIFIC:**  **2.1 follow established safety procedures during science and technology investigations**  **2.2 investigate characteristics of various objects and structures, using their senses**  **2.3 investigate, through experimentation, the properties of various materials**  **2.4 use technological problem-solving skills to design, build, and test a structure for a specific purpose** | |
| **Learning Goals:**  “We are learning …”  …to use materials safely to build a hot air balloon.  …which materials will make the best hot air balloon. | **Success Criteria:**  “We will be successful when…”  …our balloon has a basket that can hold a lego man and travel across the floor by the power of the air in the balloon. |
| **Lesson Overview:**  **Students will listen to either "Howard Had a Hot Air Balloon" or an online read-a-loud of “Curious George and the Hot Air Balloon.” For the story “Howard…”, students will participate in a discussion about the wonders of animal life created by God. They will work in pairs to create a hot air balloon that can propel a basket across the floor while holding a lego man.** | |
| **Materials and Technology:**  “Howard Had a Hot Air Balloon” by Steve Lawhead  OR  <https://www.youtube.com/watch?v=39-aF67Y5Qw>  for a read-a-loud of “Curious George and the Hot Air Balloon”  -access to internet for the online read-a-loud of “Curious George”  -access to Makerspace Lab  -construction paper  - empty water bottles  - toilet paper tubes  - one balloon per group  - tape  - string  -glue  -scissors  - markers  - balloon pump  - small plastic baskets (ex. Berry baskets) | |
| **Student Accommodations/Modifications:**  **Students are seated paired with like ability students.**  **All students will listen to the story** | **Lesson will be differentiated by:**   * **Content, specifically: n/a** * **Product, specifically: students will not blow balloons up by mouth-the teacher/student will pump up the balloons with a balloon pump.** * **Environment, specifically: takes place in Makerspace Lab & seat students in proximity to teacher as needed** |
| **MINDS ON: Getting Started** | |
| During this phase, the teacher may:  • activate students’ prior knowledge;  • engage students by posing thought-provoking questions;  • gather diagnostic and/or formative assessment data through observation and questioning;  • discuss and clarify the task(s). | During this phase, students may:  • participate in discussions;  • propose strategies;  • question the teacher and their classmates;  • make connections to and reflect on prior learning. |
| **Describe how you will introduce the learning activity to your students.**  We will blow bubbles outside and look at how big we can make them, their colour, and what homemade bubble blowers work best. We will look at a hot air balloon video (link) <https://www.youtube.com/watch?v=QGAMTlI6XxY>  **What key questions will you ask?**  What is a hot air balloon? Have you ever seen one or ridden in one? How does it work? What safety practices do we need to follow? What materials could you use to make one?  **How will you gather diagnostic or formative data about the students’ current levels of understanding?**  Evaluate the student’s process during their investigation by observation and conversations.  **How will students be grouped? How will materials be distributed?**  This is a paired activity. Students will work in the Makerspace and have access to a variety of material, and the teacher will demonstrate how to blow a balloon up using a balloon pump (not by mouth). | |
| **ACTION: Working on it** | |
| During this phase, the teacher may:  • ask probing questions;  • clarify misconceptions, as needed, by redirecting students through questioning;  • answer students’ questions (but avoid providing a solution to the problem);  • observe and assess;  • encourage students to represent their thinking concretely and/or pictorially;  • encourage students to clarify ideas and to pose questions to other students. | During this phase, students may:  • represent their thinking (using numbers, pictures, words, manipulatives, actions, etc.);  • participate actively in whole group, small group, or independent settings;  • explain their thinking to the teacher and their classmates;  • explore and develop strategies and concepts. |
| **Describe the task(s) in which your students will be engaged.**  The students will work with a partner to create a device that can be propelled by the air coming out of a blown-up balloon. The balloon will have to be attached to a basket that will allow a lego man to sit in inside.  **What misconceptions or difficulties do you think they might experience?**  I think a difficult part may be to attach the strings holding the basket to the balloon. We will not be using helium so the balloons will not really rise up like a real hot air balloon.  **How will they demonstrate their understanding of the concept?**  They will demonstrate their understanding through their construction.  **How will you gather your assessment data (e.g., checklist, anecdotal records)?**  Anecdotal records of the process; videos of their construction and execution attempts; recording the questions and their observations; asking students to explain their construction; evaluation of the final product.  **What extension activities will you provide?**  Have the students illustrate their creation and label the parts that they used. Research how materials in our town are recycled and ask the students what they recycle at home. | |
| **CONSOLIDATION: Reflecting and Connecting** | |
| During this phase, the teacher may:  • bring students back together to share and analyse strategies;  • encourage students to explain a variety of learning strategies;  • ask students to defend their procedures and justify their answers;  • clarify misunderstandings;  • relate strategies and solutions to similar types of problems in order to help students generalize concepts;  • summarize the discussion and emphasize key points or concepts. | During this phase, students may:  • share their findings;  • use a variety of concrete, pictorial, and numerical representations to demonstrate their understandings;  • justify and explain their thinking;  • reflect on their learning. |
| **How will you select the individual students or groups of students who are to share their work with the class.**  I will have each pair show the teacher what they constructed and record their demonstration. This video will be shown to the whole class. The hot air balloons will go on display in the classroom. I will give the rest of the class an opportunity to ask each group any questions.  **What key questions will you ask during the debriefing?**  **Key questions I will ask are:**   1. What materials worked best for building? 2. What safety precautions did you take? 3. If you could build it again, what would you do differently? 4. What did you learn by doing this activity? 5. What was it about the materials you used that made them work well or not well for your design? | |
|  | |