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**CODE/MOE/UOIT Makerspaces Project**

**Lesson Plan: Grade 4 Science: Food Chain Mobile**

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| **BIG IDEAS:**  Plants and animals are interdependent and are adapted to meet their needs from the resources available in their particular habitats. ***(Overall*** ***expectations 1, 2, and 3)***  **Science and Technology Specific Curriculum Expectations:**  **2.2** build food chains consisting of different plants and animals, including humans  **3.5** classify organisms, including humans, according to their role in a food chain ***(e.g., producer,*** ***consumer, decomposer)***  **3.6** identify animals that are carnivores, herbivores, or omnivores  **2.6** use a variety of forms ***(e.g., oral, written, graphic, multimedia)*** to communicate with differentaudiences and for a variety of purposes ***(e.g., use presentation software to show the steps one might follow to set up and maintain a terrarium)*** | |
| **Learning Goals:**  “We are learning to…”  Classify organisms by types and place them correctly in a food chain. | **Success Criteria:**  “We will be successful when…”  We have created an accurate food chain mobile with at least one example of a producer, herbivore, omnivore and carnivore that reflects a particular ecosystem of each student’s choice. |
| **Lesson Overview:**  **Students will be introduced to important scientific vocabulary; ecosystem, food chain, organisms, producers, consumers, herbivores, omnivores, carnivores, decomposers. Students will classify organisms according to type and will create a food chain mobile related to an ecosystem of their choice.** | |
| **Materials and Technology:**  Scrap wood for a top rung to hang items from string, fishing line, wire,  Internet pictures, scrap magazines, old books etc. to find pictures of organisms, or students can hand draw their organisms  Small pieces of wood, old CD’s or anything that can act as backing for gluing pictures of organisms of  Smartboard, projector and slideshow document “Food Chains and Webs” | |
| **Student Accommodations/Modifications:**   * **Students may be given pictures of a group of related organisms from one ecosystem which they must classify and glue on to mobile** | **Lesson will be differentiated by:**   * **Content, specifically:** * **Process, specifically:** * **Product, specifically: Student selection of environment/organisms** * **Environment, specifically:** |
| **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. 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?  Ask students what they ate today.  Why is it necessary for us or any animal to eat? (We need energy, vitamins etc.)  How do plants get their energy? (from the sun through the process of photosynthesis.)  Present slideshow “Food Chains and Webs” and discuss different types of organisms in a food chain.   * **As key terms; producer, consumer, herbivore, omnivore, carnivore come up record student created definitions of these words on to chart paper for reference sheet**   **How are organisms in a food chain represented spatially (top to bottom, side to side)? What is used to show the flow of energy, or which organism consumes which organism? (arrows)** | |
| **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. 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?  Show students different examples of mobiles particularly mobiles with items hanging from each other in a vertical fashion.  Using the smartboard present pictures of organisms that would be in a simple food chain. Ask students how they would organize this in the form of a mobile. Sketch out a plan with students.  Ask students what their favourite wild animals are. Ask students if they know what these animals eat? What other organisms do they think would be in a food chain with their favourite animals?  Present students with materials for making a food chain mobile.  Students will be allowed to use classroom computers, IPADS, etc. to research what organisms would make up a food chain involving their favourite animals or some other wild animal of their choice.  Students will conduct research, print/cut out etc. pictures of organisms in their preferred food chain. Students will construct their mobile in an appropriate manner showing how energy moves from one creature to the next.  Assessment of final product may be done using a checklist or rubric. | |
| **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.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?  Ask students to hang their completed mobiles in the classroom and select 2 or 3 of the most accurate and detailed food chains with representations of multiple types of organisms to discuss and have students present.  Provide students with an exit slip with pictures of organisms and labels of their classification. Have students cut and paste animals into correct order of a food chain.  Extension question… From where do all food chains begin? | |