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**CODE/MOE/UOIT Makerspaces Project—**

**Using Ozobots to Recreate a Day in the Life of an Animal**

**School Board: Limestone District School Board**

**Grade(s): 2**

**Subject(s): Science & Technology, Visual Arts**

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| **BIG IDEAS:****Using Ozobot robots to represent a day/night in the life of a local animal. Students will demonstrate knowledge of what an animal needs to survive and adaptations it uses in its everyday life. Students will code Ozobot robots to act like their animal.****Curriculum Expectations:****OVERALL:****Science, Understanding Life Systems, Growth and Change in Animals:** **3. Demonstrate an understanding that animals grow and change and have distinct characteristics.** **Visual Arts:****D1. Creating and Presenting: apply the creative process to produce a variety of two- and three-dimensional art works, using elements, principles, and techniques of visual arts to communicate feelings, ideas, and understandings.****SPECIFIC:** **Science:****2.5 investigate the ways in which a variety of animals adapt to their environment and/or changes in their environment, using various methods.****2.8 use a variety of forms to communicate with different audiences and for a variety of purposes.****3.2 describe an adaptation as a characteristic body part, shape, or behaviour that helps a plant or animal survive in its environment.** **Arts:****D1.1 create two- and three-dimensional works of art that express feelings and ideas inspired by activities in their community or observations of nature.** **D1.4 use a variety of materials, tools, and techniques to respond to design challenges.**  |
| **Learning Goals:**“We are learning to…”**-identify the adaptations that an animal uses to survive daily.****-communicate our thinking to others.****-code an Ozobot robot.** | **Success Criteria:** “We will be successful when…”**-we can code an Ozobot robot to demonstrate a day in the life of an animal as it travels around its habitat.** **-we can explain our thinking to others.**  |
| **Lesson Overview:****Student will design a day in the life of an animal local to our community. They will use markers to code an Ozobot to play the part of an animal as it goes about a normal day. The animal will need to seek out the things that it needs to survive and use adaptations to avoid predators or access resources. Students will use their understanding of coding with Ozobot to make their animals act in certain ways (different movements) as it travels (e.g. pausing to drink from a lake, turning and running from a predator).** **-This is a lesson to be used near the end of your study of Growth & Change in Animals. There is a focus on demonstrating what an animal needs to survive, how it uses adaptations every day to overcome obstacles and thrive.****-students already have a level of competency using Ozobot and markers to code.** |
| **Materials and Technology:** **-Ozobots****-Ozobot code reference sheet****-paper (11 x 17)****-mailing labels (good for covering up mistakes made when drawing codes)****-markers (either Ozobot brand or Crayola red, green, blue and black)** |
| **Student Accommodations/Modifications:** **-students could use iPad version of the Ozobot program to plan their route/code, prepare their presentation.****-partner work if needed.****-modifications as outlined in IEPs.** | **Lesson will be differentiated by:*** **Content, specifically:**
* **Process, specifically:**
* **Product, specifically: Depending on fine motor skill, use of iPad (and Ozobot app) could be used.**
* **Environment, specifically: quiet/alternate work space if needed.**
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| **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 activate our thinking about a day/night in the life of an animal. We will read “Stellaluna” or another text that describes an animal’s habitat. We will review what we know about what an animal receives from their habitat. We will debrief this by asking the key questions below.**What key questions will you ask?** What do animals need to survive?What potential dangers are there to an animal as they go about getting what they need to survive. **How will you gather diagnostic or formative data about the students’ current levels of understanding?**Anecdotal record keeping, photos, students own documentation (iPads, book creator) as they move through the project. **How will students be grouped? How will materials be distributed?** Students will work individually to prepare their piece. Materials are picked up by students from a central location in the classroom. |
| **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.** Students will be asked to create an interactive map that shows the habitat and a day/night in the life of an animal local to our environment. They will be creating a Ozobot track that their Ozobot animal can move along as it does the tasks that it needs to do to survive. Students must make sure that they are showing how their animal receives the food, water and shelter necessary for it to survive. They must also demonstrate 2 ways that that their animal has adapted to this environment. The animal must also encounter a predator or prey and interact with it in some way (this could be a good time to use an adaptation). They will use Ozobot movements to interact with the different elements on the map. We will review the Ozobot tip sheet before beginning**What misconceptions or difficulties do you think they might experience?** -issues with the Ozobot travelling properly along the line. We will review the Ozobot tip sheet before starting. We will have practised using the side of the marker. When students make mistakes, they can use white mailing labels to cover it up and try again.-students would benefit from a checklist to help ensure that they are meeting all the components of the task.**How will they demonstrate their understanding of the concept?**-They will have to draw the animal’s habitat including all of things that it needs to survive. This will be labelled for clarity.-They will present their work and describe what their Ozobot animal is going. -They will answer questions from teacher and peers.**How will you gather your assessment data (e.g., checklist, anecdotal records)?**-Anecdotal records, throughout. -Teacher photos of the process-Student photos of the process, in Book Creator.-Use of checklist to ensure all components are present. -anecdotal notes during presentations. **What extension activities will you provide?** -students could be asked how their animal would react if put in an unfamiliar habitat. How effective would their strategies be? How would this change their movement?  |
| **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)?** Everyone will be sharing.Students are documenting their work as they go using photos which can later be assembled into a Book Creator presentation. Students will present in a small group setting to their peers with the teacher present. **What key questions will you ask during the debriefing?** What adaptations did your animal need to survive in its habitat?What is the biggest threat to your animal?How did the use of the Ozobot allow you to share your thinking?What would you change about your work?To the group : What is something that this student did well with their work? |