Animal Life Resource Package

Creation Station Activity Ideas and Lesson Plans

Area 1: Activity Ideas

This is a sampling of ideas; additional activity ideas are available with the teacher tools included with individual videos in this resource package.

- Using a large piece of butcher paper, have students create Pet Art. Provide construction paper, scissors, glue, markers, and any other supplies needed to create artwork including cats, dogs, birds, etc.

- Have students use different types of boxes, wood scraps and containers to build a doghouse.

- Using black construction paper and white crayons, have students create their own X-Ray of a dog's anatomy.

- Have students develop a list of questions for the experts like those on the videos. Using a video device or cell phone, have students create a mini broadcast where they are the host.

- Build a model of a mosquito or monarch butterfly's body.

- Design a map that shows where monarch butterflies live and their migration paths.

- Create a butterfly symmetrical art picture.

- Plant milkweed outside class or home windows and observe butterflies that visit it.

- Design and make housing for bees and other insects.

- Create functioning models of a bird's wing while studying avian flight.

- Create fantastical drawings of dragonflies while studying their flight and habitats, exaggerating their unique structures and abilities. (What if a dragon fly where as large as an airplane?)

Area 2: Lesson Plans

This document includes a sampling of Educate.Today lesson plans available related to Animal Life and Nature. You can also check out activity lesson plans available with the teacher tools included with individual videos in this resource package.

Sample Lesson 1: Pollinator Game Creation

Type of Teacher Tool: Individual/Differentiation
Targeted Grade Level(s): Middle to High School
Targeted Curriculum Areas: Science, Animals and Insects, Nature

Learning Objectives:
The learner will:

1. research pollinators, their life cycles and their habitats, and record information.
2. plan and design a board game for students younger than themselves, based on what they have learned about pollinators.

Featured National Standards:
Common Core State Standards
1. CCSS.ELA-LITERACY.RST.6-8.1
Cite specific textual evidence to support analysis of science and technical texts.
2. CCSS.ELA-LITERACY.RST.6-8.2
Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.
3. CCSS.ELA-LITERACY.RST.6-8.3
Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

Additional State and National Standards related to the content of our videos listed below for this lesson are also provided on the Educate.Today page where you find the video.

Resources/Materials Needed:
Nature 6: Celebrate the Earth with Insects: Mosquitos and Monarchs–Insect Ecology and Eco-Sense
Nature 7: How Do Scientists Tag and Follow Monarch Butterflies
Nature 8: The Live Cycle of a Monarch Butterfly
Nature 9: Helping Create a Healthy Habitat for the Monarch Butterfly
Nature 15: How Native Plants Help Pollinators
Nature 18: Planting for a Pollinator Garden

Teacher Instructions:

1. Introduce students to pollinators by having them view some or all of the above videos.
2. Lead students in a discussion about their favorite board games.

3. Next discuss the reasons why they like a particular game.
4. Begin to record a list of these reasons and have the students add other components they like about board games.
5. Tell students that they will research pollinators and record information that they find. Using this information, they will design a board game, based on pollinators, for students younger than themselves. If they need help in deciding their game type, remind them to think of their own favorite and base their game upon that; questions that advance the player around the board, chutes or ladders that take them from one spot to another, etc.
6. Provide this list of game requirements:
   - Name
   - Rules
   - Creative board design
   - Relates to pollinators
7. Monitor progress and evaluate their games. If possible, arrange with another teacher for students to actually play the games.

Assessment/Evaluation Options:

1. Use the rubric below for assessment.

Pollinator Game Creation Rubric

	10 points	**7 points**	**4 points**	**1 point**
Gameboard Design	Colorful, attractive and has all required components.	Complete but messy.	Required components are missing.	Little effort was given design or learning abo pollinators.
Pollinator Information	There is extensive information about pollinators incorporated into the game.	There is a moderate amount of information about pollinators incorporated into the game.	Some information about pollinators is incorporated into the game.	Little to no informatio about pollinators is incorporated into the game.
Directions	Directions on how to play the game are clear, concise, with no typos or grammatical errors and are easily found.	Directions miss a few steps or have either a few typos or grammatical errors.	Directions are unclear and have either several typos or grammatical errors.	Directions are not understandable and there are multiple typo or grammatical errors.

Sample Lesson 2: A Dog's Life

Type of Teacher Tool: Whole Class, Individual/Differentiation
Targeted Grade Level(s): K-4
Targeted Curriculum Areas: Life Science

Essential Question: Why do animals change depending on where they live?

Learning Objectives:
The learner will:
1. differentiate between physical and behavioral adaptations in animals.
2. identify key adaptations of a variety of animals.
3. understand how adaptations allow an animal to thrive in different environments.

Featured National Standards:
1. Missouri Grade Level Expectation
   - GLE / COMPONENT 3.LS1.A.1.

   Construct an argument with evidence that in a particular ecosystem some organisms -- based on structural adaptations or behaviors -- can survive well, some survive less well, and some cannot survive at all. [Clarification Statement: Examples of evidence could include needs and characteristics of the organisms and habitats involved. The organisms and their habitat make up a system in which the parts depend on each other.]
2. Next Generation Science Standards
   - 3-LS4-2.

   Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing.

Resources/Materials Needed:
1. Videos from Educate.today
   Veterinary 5: Explore! Life as a Dog
   Veterinary 9: A Dog's Sense of Touch
   Veterinary 10: A Dog's Hearing and Thunderstorms
   Nature 2: Dog's Intelligence Level
   Nature 3: A Dog's View–Sense of Sight
   Nature 4: Dogs and Storms
   Nature 5: Dogs Detecting Cancer
   Nature 22: How Dogs Help Humans
2. Pictures of different animals. Try to find some with specialized features such as sharp fangs, cavity nesting, poison defense adaptations, only eats plants, etc.
3. Book "It's a Dog's Life" by Susan E. Goodman.
4. Reference books covering animal characteristics, such as National Geographic Animal Encyclopedia: 2,500 Animals with Photos, Maps, and More!, 2012 by Lucy Spelman (Author).

Teacher Instructions:

1. Engage: Obtain and read a copy of "It's a Dog's Life" by Susan E. Goodman. It goes into fun detail about how dogs see, hear, smell and how they adapted to meet their needs. Ask students to brainstorm some of the things they saw in the book that shows that dogs have adapted. Guide the discussion so that the students gain a general understanding of the word 'Adaptation'.
2. Explore: Spend some time talking about other animals that have special characteristics to survive in the world. Introduce the difference between physical adaptations and behavioral adaptations. Start a chart on the board with a column for each type of adaptation and prompt the students to think of some animals that have special ways of surviving and thriving. Show them the pictures you have sourced and discuss what you see as an adaptation. (For your reference, there is a chart at the end of this lesson.) Remind them that some animals can change color to hide, some are cold-blooded and need certain environments and so on.
3. Switch back to dogs and explain that they will be viewing some videos that discuss a dog's special adaptations. (Note: the video Veterinary 5 is about 30 min. long. The others are snippets of it or snippets from other videos on the same topic. Use what suits your time and needs). View videos as needed.
4. Go back to the list on the board and ask the students to add to it with the information from the videos. Spend some time questioning the difference between behavioral and physical adaptations and add to the list with the students input.
5. Explain: Play an activity call 'Adaptation Tag'. This will reinforce the concept of behavioral and physical adaptations.
    a. Choose a few students to be biologists studying an ecosystem. Everyone else should be an animal. They can write the animal on a post-it (make sure there are no repeats). Or you can pre-write the animals on cards and have the students pull from a bucket.
    b. Using the list on the board as a guide, the biologists call out a behavioral or physical adaptation that they want to investigate, and any animal with that adaptation must move to the other side of the room. For example, if the biologist calls out "sharp teeth", students who believe their animal has sharp teeth should move. The biologists must agree that the animal fits the description and can then 'tag' the animal with a sticker. Engage all the students to debate about the decision and see if they agree. Encourage them to find evidence and defend their decisions. Next round change biologists and give the former biologist the animal that the students had and play again. After the third or fourth round, check for understanding.

Extension Activity:

1. Write a story about what kind of adaptations they would want to have if they lived in a different ecosystem.
2. Choose three adaptations and then draw an animal that displays all three.

Assessment/Evaluation Option

1. Students can do a Quickwrite and respond to these questions (or any that you think will show understanding). How do humans survive and thrive all over the world? What do we have that allows us to do this? Then ask them to do the same for another animal. Give feedback on their understanding of the difference between behavioral and physical adaptation.
2. Construct a sorting activity with lists of the types of adaptations and ask students to put them in the correct category.

Physical Adaptations	Behavioral Adaptations
Specialize/modified body parts: • Claws • Teeth • Eyes • Ears • Stomachs • Bird Beaks Defense: • Poison • Spray • Hard shells Mimicry: • Body coloring/patterns that mimic poisonous animals • Body patterns that mimic larger animals Camouflage: • Ability to change color • Color that blends in surroundings • Body structure mimics environment	Food: • Carnivore • Omnivore • Herbivore • Scavenger Activity: • Nocturnal • Diurnal • Crepuscular Temperature/Seasonality: • Hibernation • Estivation • Migration • Tolerate Symbiosis: • Mutualism • Commensalism • Parasitism Shelter: • Dig Burrow

	• Nest in cavities and/or structures • Use other animal burrows Predator/prey interactions: • Prey: hiding, playing dead, running • Predator: stealthy, sit and wait Communication: • Bird songs/calls Territorial behaviors: • Marking territory • Fighting for territory

Sample Lesson 3: Who Lives Here?

Type of Teacher Tool: Pick from Whole Class and Small Group
Targeted Grade Level(s): 5-8
Targeted Curriculum Areas: Life Science / STEAM

Essential Question: Why do we need bugs in our yards?
Learning Objectives:
The learner will:

1. identify the needs of insect pollinators.
2. compare human and insect needs.
3. analyze and explain biodiversity.
4. create drawn plans for a small garden that meets the needs of local pollinators.

Featured National Standards:

1. Next Generation Science Standards
   MS-LS2-5. Evaluate competing design solutions for maintaining biodiversity and ecosystem services.
2. National Core Arts Standards
   Visual Arts-Creating, 6th VA:Cr1.1.6a
   Combine concepts collaboratively to generate innovative ideas for creating art.

Resources/Materials Needed:

1. Videos from Educate.Today
   - **Nature 18: Planting for a Pollinator Garden**
   - **Nature 15: How Native Plants Help Pollinators**
   - **Nature 8: The Life Cycle of a Monarch Butterfly**
   - **Nature 7: Helping Create a Healthy Habitat for the Monarch Butterfly**
   - **Nature 6: Celebrate the Earth with Insects: Mosquitos and Monarchs–Insect Ecology and Eco-Sense**
2. Books for research on the topic: Suggested titles
   - Attracting Native Pollinators: The Xerces Society Guide, Protecting North America's Bees and Butterflies, 2011 by The Xerces Society (Author), Dr. Marla Spivak (Foreword).
   - National Audubon Society Field Guide to Insects and Spiders: North America (National Audubon Society Field Guides) by National Audubon Society.
   - National Geographic Pocket Guide to Insects of North America, 2016 by Arthur V. Evans, Jared Travnicek.
   - National Wildlife Federation(R): Attracting Birds, Butterflies, and Other Backyard Wildlife, Expanded Second Edition (Creative Homeowner) 17 Projects & Step-by-Step Instructions to Give Back to Nature, 2019 by David Mizejewski (Author).
3. Blank Venn Diagrams
4. Notebooks and pencils, art supplies.
5. Handheld magnifying glasses.

Teacher Instructions:

1. Animals come in many shapes and sizes, inhabit different places, and live in different ways. **Biodiversity** is the term that describes the many different species sharing one habitat. Understanding what makes a species special and where and how it lives are important if people are to learn to conserve and co-exist with wildlife. Explain that the students will be comparing what they need to survive with what they discover about insects needs, and then examining ways to encourage biodiversity on a small scale.
2. Plan a short walk to a nearby garden or wild area. Ask the students to bring their notebooks, pencils, and magnifying glasses. The notebooks should be set up so the students can use a whole page for each thing they observe. Explain to them that they will be looking for insect life in the garden, and they are to examine 4 different creatures by observing them with the magnifier and recording the following: Quick sketch with notations about color, size, and anything unusual they find (super large antennae…). They should note brush or cover for insects, nearby water, where the insect is hanging out, possible things the insect might use for food. You might want to model a journal observation page ahead of time. (Example attached)
3. Set up small group research stations with the reference materials, and give the students time to look up their insects, possibly identify them, and make further notes about habitats, food, etc. This is also a good place to use the videos that have a lot of information on this topic, as part of their reference materials. They can view in small groups if possible or as a class. They should collaborate and help each other.
4. Ask students to set up a Venn diagram with one side labeled "Basic Needs Humans," and one side labeled "Basic Needs Insects." Using their notes and background knowledge about human needs they can begin to fill out the diagrams. Again, it's okay if they collaborate; they will learn from each other.
5. Whole group discussion: lead the talk to the basic needs of living organisms. Ask the students what would happen if they did not have food or water available. Ask the same questions about insects. Ask which were most common and which were one of a kind. Tell them their project will be to design a small garden, or even a garden in pots, that will provide everything most insects need to survive. This is the graded portion of the lesson so consider using a rubric that measures the things you are emphasizing such as the knowledge of biodiversity, basic needs of living creatures, best practice for nurturing biodiversity, etc. Give them art supplies and again they can use the reference materials to help with their design.

Extension Activity:

1. Design and build shelters that are appropriate for insects.

Assessment/Evaluation Option

1. Rubric to evaluate understanding of the concepts in the standards as shown in their garden plans and notebooks.