



# Living in Space: Man-Made Habitat on Mars

*Plant and Animal Needs*

*Grade: Kindergarten*

*Ms. Martinez, Alamosa, CO*

## **BIG IDEAS**

After spending 4 weeks learning about Earth's habitats and what plants and animals need to survive (K-LS1-1. Use observations to describe patterns of what plants and animals (including humans) need to survive), students will use their knowledge of the relationship between animals/plants and where they live to design a solution for making Mars a habitable planet for plants and animals.

## EDUCATION STANDARDS

### NGSS Performance Expectation(s)

#### **K-ESS3 Earth and Human Activity**

**K-ESS3-1.** Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live. *[Clarification Statement: Examples of relationships could include that deer eat buds and leaves, therefore, they usually live in forested areas; and, grasses need sunlight so they often grow in meadows. Plants, animals, and their surroundings make up a system.]*

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts:
<p><b>Asking Questions and Defining Problems</b></p> <p>Asking questions and defining problems in grades K–2 builds on prior experiences and progresses to simple descriptive questions that can be tested.</p> <ul style="list-style-type: none"> <li>Ask questions based on observations to find more information about the designed world. (K-ESS3-2)</li> </ul> <p><b>Developing and Using Models</b> Modeling in K–2 builds on prior experiences and progresses to include using and developing models (i.e., diagram, drawing, physical replica, diorama, dramatization, storyboard) that represent concrete events or design solutions.</p> <ul style="list-style-type: none"> <li>Use a model to represent relationships in the natural world. (K-ESS3-1)</li> </ul> <p><b>Obtaining, Evaluating, and Communicating Information</b></p> <p>Obtaining, evaluating, and communicating information in K–2 builds on prior experiences and uses observations and texts to communicate new information.</p> <ul style="list-style-type: none"> <li>Read grade-appropriate texts and/or use media to obtain scientific information to describe patterns in the natural world. (K-ESS3-2)</li> <li>Communicate solutions with others in oral and/or written forms using models and/or drawings that provide detail about scientific ideas. (K-ESS3-3)</li> </ul>	<p><b>ESS3.A: Natural Resources</b></p> <ul style="list-style-type: none"> <li>Living things need water, air, and resources from the land, and they live in places that have the things they need. Humans use natural resources for everything they do. (K-ESS3-1)</li> </ul> <p><b>ETS1.A: Defining and Delimiting an Engineering Problem</b></p> <ul style="list-style-type: none"> <li>Asking questions, making observations, and gathering information are helpful in thinking about problems. (secondary to K-ESS3-2)</li> </ul> <p><b>ETS1.B: Developing Possible Solutions</b></p> <ul style="list-style-type: none"> <li>Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem’s solutions to other people. (secondary to K-ESS3-3)</li> </ul>	<p><b>Systems and System Models</b></p> <ul style="list-style-type: none"> <li>Systems in the natural and designed world have parts that work together. (K-ESS3-1)</li> </ul>

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**Common Core State Standards:**

**Colorado State Standards link:**

<https://www.cde.state.co.us/apps/standards/7,2,17/4,2,11/6,2,19>

**Math: Standard 4**

**K.G.A. Geometry: Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres).**

Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as *above*, *below*, *beside*, *in front of*, *behind*, and *next to*. (CCSS: K.G.A.1)

Correctly name shapes regardless of their orientations or overall size. (CCSS: K.G.A.2)

Identify shapes as two-dimensional (lying in a plane, "flat") or three-dimensional ("solid"). (CCSS: K.G.A.3)

**K.G.B. Geometry: Analyze, compare, create, and compose shapes.**

Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes. (CCSS: K.G.B.5)

Compose simple shapes to form larger shapes. *For example, "Can you join these two triangles with full sides touching to make a rectangle?"* (CCSS: K.G.B.6)

**ELA: Reading, Writing and Communicating**

**Standard 3: Writing and Composition**

- a. Use a combination of drawing, dictating, and writing to compose informative/explanatory texts in which they name what they are writing about and supply some information about the topic. (CCSS: W.K.2)
- b. With guidance and support from adults, respond to questions and suggestions from peers and add details to strengthen writing as needed. (CCSS: W.K.5)
- c. With guidance and support from adults, explore a variety of digital tools to produce and publish writing, including in collaboration with peers. (CCSS: W.K.6)

## MEASURABLE STUDENT LEARNING OBJECTIVES

Students will be able to demonstrate the relationships of plants/animals and the places they live by designing a 3 dimensional, man-made, habitat to support life on Mars.

## STEM INTEGRATION

Science, Engineering, Math, Literacy

Students will use their knowledge of what plants/animals need to survive in their habitats on Earth and apply it to designing a habitat that would support life on Mars. Students will design and build a 3 dimensional habitat that will include a shelter. The habitat will be a diorama consisting of materials that are 2D and 3D shapes. Students will identify shapes and build their diorama by composing larger shapes from simple shapes. The literacy component will consist of students labeling their habitat with prompt and support, using a combination of drawing, dictating and writing an explanatory text that includes a topic and some information about the topic.

## NATURE OF STEM

This lesson addresses the “nature of” science, technology, engineering and math by integrating each of them simultaneously within the lesson. The NOS, NOT, NOE, and NOM each produce specific types of knowledge, but they also overlap and can apply each other's knowledge with each discipline. The majority of the NOS piece took place during our 4 weeks of learning about habitats, it is still being used in this lesson as the primary content. Students will use their knowledge about habitats to design a habitat on Mars that will support life (water, air, food, shelter). NOE and NOM are overlapped with NOS to be able to design a solution to the lesson’s problem of creating a habitat on Mars. In order to successfully engineer a 3D habitat, knowledge of 2D and 3D shapes as well as composing larger shapes is needed. NOT is used as a resource for data, which is used to learn about Mars’ environment.

## MATERIALS NEEDED

Videos/Images of Mars

Paper

Pencils, crayons, markers

Cardboard box (shoebox)

Construction paper

Glue

Scissors

Clay

2d Shapes and Foam 3D forms

Toothpicks

Tape

Sand

rocks/pebbles

Post It notes

Anchor Charts: habitats, vocabulary, sentence frames for informational writing

Animal images

Chart Paper

Rubrics

## ENGAGING CONTEXT/PHENOMENON

Video: [Spirit of Mars](#)

The engaging phenomena for this lesson will be a video from NASA that has no explanation of what is happening. It includes videos and still images of the Red Planet over 6 years of exploration.

This video is intended to get students thinking and questioning. Students will not be told that the video is of Mars. They will need to make observations and using prior knowledge about habitats, try to guess what type of habitat it is (desert, ocean, forest, etc.) Students will need to explain their reasoning.

## DATA INTEGRATION

Data for this lesson will include information from NASA that includes:

[NASA Space Place: Mars](#)

[Mars Weather Report](#)

[Mars: Wet to Dry](#)

[Mars Wind Currents](#)

\*Students will not be collecting data in this lesson, however they will be analyzing data of Mars to assist them in creating a habitat that will sustain life on Mars.

## TEACHER BACKGROUND KNOWLEDGE

Teacher will need to know what the environment is like on Mars in order to lead a discussion on the differences and similarities it has with Earth. Videos and visuals will be utilized to create phenomena.

### **Videos:**

[Mars: The Red Planet](#)

<https://www.youtube.com/watch?v=YuDNn2Djg0A>

What Would We Eat on Mars?

<https://www.youtube.com/watch?v=r60ND0V5NG4>

How Will Humans Live on Mars?

<https://www.youtube.com/watch?v=cf-JUz3gqdk>

## **Images**

NASA Solar System Exploration: [Mars](#)

NASA Solar System Exploration: [Mars Image Gallery](#)

## **DIFFERENTIATION OF INSTRUCTION**

**To accommodate for English Language and SPED learners, use the following differentiation strategies:**

Use of visuals and non-linguistic representations of key concepts and vocabulary will be used and referenced throughout the lesson. Students will be introduced to key vocabulary at the beginning of the lesson, picture sorts or Frayer Models for vocabulary will be utilized. Use of small groups and one-on-one support will be incorporated during the planning and building stage of the 3D habitat. Sentence frames and word banks will be made available for the ELA piece.

**To accommodate Gifted Learners, the following differentiation strategies could be used:**

Allow students to research other planets and create a habitat for their chosen planet. Students can present their project to other classes, parents and/or other school staff using technology (Google slides).

## **REAL-WORLD CONNECTIONS FOR STUDENTS**

Mars has been a peak of interest for quite some time. The wonderment of “what is out there?” has sparked interest in discovering life outside of our planet. Real-world connections come from being able to identify our own world and the plants and animals that Earth is home to. From our previous learning, we know that plants and animals need certain things to survive (food, water, air, shelter). If life is to be evident outside of Earth, we know that food, water, air and shelter must be key characteristics of a habitat on Mars. Students will use their background knowledge of habitats to design shelter for Mar’s environment. They will be able to incorporate the different shelter designs that are present in their own home as well as those we have learned about from other cultures. Students will be able to connect this lesson to their everyday lives, by comparing how their needs are met to survive in their environment on Earth and transferring them to Mars.

## **INTEGRATION POSSIBLE MISCONCEPTIONS**

Possible misconceptions can stem from students not having a clear understanding of Mars and other planets in general. They may think that other planets can support life. To help students have a better understanding of Mars and the environment, videos, images and texts will be included. Picture sorts of animals and plants along with various environments will be used as an assessment task, as well as picture sorts that include Mars and what is lacking from its natural environment (water, air, plants, etc.)

## LESSON PROCEDURE

5E	Details of 5E Lesson Implementation
<p><b>Day 1:</b></p> <p><b>Engage</b></p>	<p><b>Procedure: Prior Knowledge and Engaging Phenomena</b></p> <p><b>Prior Knowledge</b></p> <p>Teacher will ask students to think about what they know about habitats and if they consider themselves to be experts.</p> <p>Students will discuss with a partner the following questions:</p> <ul style="list-style-type: none"> <li>● What is a habitat?</li> <li>● What do plants and animals need to survive?</li> </ul> <p>*Allow students think time (30 seconds). Students should be able to identify which partner they are. For example Partner A/Partner B. Instruct partner A to share with B, and vice versa.</p> <ul style="list-style-type: none"> <li>● Whole group, ask the class “what is a habitat?” Due to prior knowledge, the whole group should be able to define a habitat along with non-linguistic representation. (A habitat is a place where plants and animals live and grow)</li> </ul> <p>*Ask the second question, again allowing for think time and making sure each partner gets a chance to share.</p> <ul style="list-style-type: none"> <li>● Whole group, ask the class “what do plants and animals need to survive?” Due to prior knowledge, the whole group should be able to define a habitat along with non-linguistic representation. (Plants and animals need food, water, air and shelter to survive in their habitat)</li> </ul> <p><b>Engaging Phenomena</b></p> <p>Video: <a href="#">Spirit of Mars</a></p> <p>Teacher will explain to the class that they will need to make observations of the video and use their prior learning about habitats to identify where the</p>

video is taking place and possibly what kind of habitat it is.

When the video is over:

- Give students time to collect their thoughts before having them illustrate and label their ideas on a PostIt note.
- Students will share with their partner what they illustrated and think the video was about. \*use the Partner A/B protocol used previously
- Teacher will bring the whole group back together and ask for students to share their thoughts on the place and habitat.
  - Teacher can collect PostIt notes on a note catcher.
- Teacher will lead discussion on what the video was of: Mars
  - Teacher will use their background knowledge of habitats and what plants and animals need to survive, to launch the lessons problem.
- Teacher explains that students will use their knowledge about plants/animals and their habitats to design a man-made habitat on Mars.

### **Modifications**

Anchor charts of habitats will be displayed for students to reference.

Sentence frames will be posted and modeled before students share with their partners.

- A habitat is\_\_\_\_\_.
- Plants and animals need\_\_\_\_\_.
- The habitat is\_\_\_\_\_because\_\_\_\_\_.

### **Standards Addressed**

Science: 3.2.a

Literacy: 1.1a,b,c

### **Formative/Summative Assessments**

Academic discourse through partner talk

Students illustrations and labeling.

	<p><b>Resources:</b></p> <p><a href="#"><u>Spirit of Mars</u></a></p> <p>Sticky notes, pencils, note catcher, existing habitat anchor charts</p>
<p><b>Explore</b></p> <p><b>Day 2</b></p>	<p><b>Procedure:</b></p> <p><b>Identify habitats on Earth and how each habitat provides for plants and animals to survive.</b></p> <p><b>Illustrate and label personal habitats.</b></p> <p>Teacher will display 4 habitats: desert, ocean, polar regions and forest.</p> <p>Students will participate in a quick picture sort. They will each get 2 photos of animals to identify which habitat they belong to. Students will paste the picture to the correct habitat poster. Students will be divided into 4 groups, with each group being assigned to a specific habitat. Within those groups, (using the Partner Protocol) the teacher will facilitate questioning: <u>How do these animals survive in your habitat? What do they need to survive? How does the habitat provide those needs?</u></p> <p><b>*Groups will then be paired up by habitats:</b></p> <p>Desert/Ocean and Polar Regions/Forest</p> <p><b>Questioning:</b> Students from each habitat will have a chance to identify what is the same and what is different about their partner habitats using the Partner protocol.</p> <ul style="list-style-type: none"> <li>● How are your habitats similar/different?</li> <li>● What animals live there?</li> <li>● Do humans live in your habitat?</li> <li>● What if you switched habitats? Could you survive going “as is” or would you need to take supplies to survive in the new habitat?</li> </ul>

Students will create (illustrate and label) a list of items they would need to survive in their new habitat, making sure to use their knowledge about how plants and animals survive. (graphic organizer)

Prior Knowledge: Plants and animals need: food water shelter and air

**Whole Group questioning:**

\*use the partner A/B protocol

- What are some man-made habitats that already exist?
- How do people design and build man-made habitats?

Examples: zoo, aquariums, animal sanctuaries

**Illustrating Our Personal Habitats**

Teacher and students will illustrate what their homes look like and include what essential needs that are a part of their personal “home” habitats.

Lead the activity with the following questions:

- Do you have shelter?
- What does your shelter look like?
- Does your shelter have everything you need to survive?
  - Food, water, air

Teacher will illustrate and label their personal habitat (home), seeking out suggestions from the class.

- What rooms do I need to include in my personal habitat?
- What supplies are in each room and why? Examples: *“A refrigerator is in the kitchen to keep food from going bad.” “There are sinks in the kitchen and bathrooms for water access.” “There are windows in each room to let in fresh air.”*

After teacher has modeled (illustrate, labeled and explained) their personal habitat, students will independently illustrate and label their own. When students are finished with illustration and labeling, they will explain their personal habitat to their partner.

**Modifications**

Students can use a pre-made floor plan for their personal habitat so that they only need to illustrate within the template.

Word banks for labeling

**Standards Addressed**

Science 3.2.a,

Literacy Standard 2.2.a

**Formative/Summative Assessments**

Academic discourse

Illustration and labeling of personal habitat

**Resources**

[Habitat/Animal picture sort images](#)

Habitat posters

Pictures of animals

Glue sticks

Chart paper

Graphic organizer

Pre-made floor plan

Paper

Pencils

<p><b>Explain</b></p> <p><b>Day 3</b></p>	<p><b>Procedure: Identify challenges of designing a habitat for Mars</b></p> <p>This part of the lesson involves observing and learning about the Mars environment in order to design a habitat that can support life on Mars. Teacher will show informational videos from NASA and lead discussions about how Mars is different, or the same as Earth.</p> <p>Mars' environment will be analyzed and compared to Earth using video resources.</p> <p><a href="#">Weather on Mars</a></p> <p><a href="#">Mars: Wet to Dry</a></p> <p><a href="#">Mars Wind Current</a></p> <p><a href="#">Solar System Exploration</a></p> <p>Students will have a chance to freely explore <a href="#">NASA Space Place: Mars</a></p> <p>After students have had time to explore Space Place, gather students together in a whole group to create a venn diagram that compares and contrasts Earth and Mars. Ask the following questions:</p> <p>*You can reference videos as well as images.</p> <p><b>Questions for the whole group:</b></p> <p>*Use the partner protocol,</p> <ul style="list-style-type: none"> <li>● How are Earth and Mars the same? (list them on the venn diagram)</li> <li>● How is Earth different from Mars? What does it have that Mars doesn't? (list them on the venn diagram)</li> <li>● How is Mars different from Earth? What does Mars have that Earth doesn't? (list them on the diagram)</li> </ul> <p>*Remember to fill out the venn diagram using illustrations to help learners quickly identify differences and similarities. You can label the drawings.</p> <p>Explain to students that we will now take a closer look at Mars and the challenges it has for sustaining life. We will create a T-Chart with "challenges/problems" and possible "solutions." Students will have a white board and marker to illustrate and label their answers before sharing with their</p>
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partner.

**Questions for whole group (referencing our venn diagram):**

1. What does Mars need in order to sustain life? (recalling what plants and animals need to survive)
2. What are some ways we can solve that problem?
  - Ask question 1, allowing students think time and enough time to illustrate and label their “challenge/problem” \*use the partner protocol for discussion. Teacher will then record students' answers on the “challenge/problem” side of the T-chart.
  - Repeat using question 2, going through all of the challenges and recording on the T-chart.

**Modifications**

Teacher will join partners with SPED/EL students to assist in facilitating discussion.

Sentence frames for partner discussions and whole group participation:

- Earth/Mars is different from Mars/Earth\_\_\_\_\_.
- Earth is similar to Mars\_\_\_\_\_.
- Both have/can\_\_\_\_\_.
- A problem on Mars is\_\_\_\_\_.
- A solution can be\_\_\_\_\_.
- We can solve that by\_\_\_\_\_.

Vocabulary and images posted for reference.

**Standards Addressed**

Science: 3.2.a, K-ESS3-1,K-2-ETS1-1

Literacy: 1.1a,b,c, 1.2.b,c

**Formative/Summative Assessments**

- Academic discourse through partner talk
- Students illustrations and labeling.

	<p><b>Resources</b></p> <p><a href="#">Weather on Mars</a></p> <p><a href="#">Mars: Wet to Dry</a></p> <p><a href="#">Mars Wind Current</a></p> <p><a href="#">Solar System Exploration</a></p> <p><a href="#">NASA Space Place: Mars</a></p> <p>White boards and dry erase markers</p> <p>Venn Diagram (Earth/Mars) and T-chart (Problem/Solution)</p>
<p><b>Elaborate</b></p> <p><b>Day 4</b></p>	<p><b>Procedure: Analyze how problems can be solved with the use of technology.</b></p> <p>Teacher will explain to the class that research is being done to make habitats in space. Specifically, Mars, and with technology, scientists are able to solve some of the problems that we mentioned on our T-Chart and will be watching videos to help us understand how scientists are doing it.</p> <p><a href="#">NASA Scientist: Have Humans Ever Visited Mars?</a></p> <p><a href="#">Deep Space Habitat</a></p> <p>As the videos play, stop the videos to define the following terms with a non-linguistic representation:</p> <p><b>Atmosphere:</b> an envelope of gas surrounding a planet or moon.</p> <p><b>Countermeasure:</b> a measure or action taken to counter or offset another one. Example: Astronauts exercise as a countermeasure against bone loss.</p> <p><b>Demineralization:</b> the loss, deprivation, or removal of minerals or mineral salts from the body, especially through disease, as the loss of calcium from bones or teeth.</p> <p><b>Distill:</b> to heat a liquid to make it a gas and then to cool the gas back to a liquid so that it is pure. One way to minimize the amount of water that has to</p>

be carried on a space mission is to distill waste water and fluids back into drinking water.

**Fluid:** a substance, as a liquid or gas, that is capable of flowing. Ordinary methods of dealing with fluids, such as pouring, will not work in space.

**Nutrition:** the science or study that deals with food and nourishment, especially in humans. Good nutrition is important in an astronaut's food choice to maintain health and prevent bone loss in space.

**Orbit:** to move or travel around a central object in an orbital or elliptical path. Earth orbits the Sun once every 365.25 days.

**Recycle:** to treat or process used or waste materials so as to make them suitable for reuse.

**Terraforming:** To transform (a landscape) on another planet into one having the characteristics of landscapes on Earth.

**Weightless:** the condition of being in a continual freefall during orbit so that all sense of gravitational attraction is lost. Astronauts need some time to get used to being weightless in space. (Have students move around the room as if they were weightless)

After each video, create another column to our T-Chart and label '**Scientific Solutions**'. Write down some of the solutions students heard on the videos that would help with the problems.

**Whole Group Questioning:**

- Can any of the scientists' solutions help us to design our man-made habitat on Mars?
- Which ones will help us design a habitat to sustain life on Mars?

**Modifications**

Partner with students who need additional support for discussion.

	<p><b>Standards Addressed</b></p> <p>Science 3.2.a, K-2-ETS1-1</p> <p>Literacy Standard 2.2.a</p> <p><b>Formative/Summative Assessments</b></p> <p>Academic discourse</p> <p><b>Resources</b></p> <p><a href="#">NASA Scientist: Have Humans Ever Visited Mars?</a></p> <p><a href="#">Deep Space Habitat</a></p> <p>T-Chart, chart paper,</p>
<p><b>Evaluate</b></p> <p><b>Day 5/6</b></p>	<p><b>Procedure: Design 3D Man-Made Habitat for Mars</b></p> <p>Students will work in groups of 4 to complete the task.</p> <p>Students will recall prior knowledge of habitats and what plants and animals need to survive to create their 3D Mars Habitat.</p> <p><b>Questioning for small groups:</b></p> <p>*Follow the partner protocol, partner will share within their small group, then share out whole group</p> <p><b>Questions:</b></p> <ul style="list-style-type: none"> <li>● How is Mars different from Earth?</li> <li>● What is missing from the Mars environment that humans need to survive?</li> <li>● What would need to be added to Mars in order for us to survive?</li> <li>● What technology have humans used already would help support life on Mars?</li> </ul> <p>Teacher references the T-Chart made previously and discusses challenges and possible solutions for designing a man-made habitat that will sustain life on Mars.</p>

Teacher will model creating (drawing) a design for their 3D model that includes: shelter, water source, food source, and air source.

Teacher will model using 2D and 3D shapes, stating the name and any defining attributes, as well as the modeling of composing larger shapes using small shapes. **Ex:** “To make the walls of my shelter, I will use 2 square tiles to compose a rectangle to make my wall longer.” “I will use a cylinder foam for the oxygen tank.”

(Teacher will model completing Resource and Shapes Checklist)

After teacher models design creation and building, students will then work collaboratively with their groups to create their design for their man-made 3D habitat for Mars. Students will be given a self-check list of what needs to be included in their design before building with the given materials. (Found in “Printed Materials” at end of lesson)

Resource	
Food	
Water	
Air	

Shape	2D or 3D	Amount used

**Once students have collaboratively built their man-made habitat, complete with labels, they will begin the writing process of describing their habitat and what it provides for human life in their writing journals.**

**Modifications**

Teacher will join partners with SPED/ELL students to assist in facilitating discussion.

Sentence frames for partner discussions and whole group participation:

- Earth/Mars is different from Mars/Earth\_\_\_\_\_.
- Earth is similar to Mars\_\_\_\_\_.
- Both have/can\_\_\_\_\_.
- A problem on Mars is\_\_\_\_\_.
- A solution can be\_\_\_\_\_.
- We can solve that by\_\_\_\_\_.
- My habitat is composed of \_\_\_\_\_ (shape).

Teacher will model creating a design that students can reference for their own.

Teacher will assist in the building of habitat.

Images of 2D and 3D shapes for reference.

Teacher will use grouping strategies for placing students in their group.

**Standards Addressed**

Science: K-ESS3-1

Literacy: 3.2.a

Math:

CCSS: K.G.A.1, K.G.A.2, K.G.A.3, K.G.B.5, K.G.B.6

**Formative/Summative Assessments**

Academic discourse

Illustrated model design with labeling

3D Model with explanatory writing and/or verbal description (prompt and support)

**Resources**

Videos/Images of Mars: [Solar System Exploration](#),

NASA Solar System Exploration: [Mars Image Gallery](#)

Paper

Pencils, crayons, markers

Cardboard box (shoebox)

Construction paper

Glue

Scissors

Clay

Foam 3D forms

Toothpicks

Tape

Sand

rocks/pebbles

Post It notes

Anchor Charts: habitats, vocabulary

Sentence frames for informational writing

Student Self-Check Rubric

Teacher Rubric

## Rubrics

# Living in Space: Man-Made Habitat on Mars Design/Structure

Criteria	4	3	2	1	0
<b>Knowledge of Relationship Between Animals/Plants and Where They Live</b>	Student demonstrates a thorough understanding of the relationship between animals/plants and their habitats, and effectively applies this knowledge to design a man-made habitat on Mars that can sustain life for plants and animals.	Student demonstrates a good understanding of the relationship between animals/plants and their habitats, and applies this knowledge to design a man-made habitat on Mars that can sustain life for plants and animals, with minor inaccuracies or omissions.	Student demonstrates a basic understanding of the relationship between animals/plants and their habitats, and attempts to apply this knowledge to design a man-made habitat on Mars that can sustain life for plants and animals, but with significant inaccuracies or omissions.	Student demonstrates limited understanding of the relationship between animals/plants and their habitats, and makes minimal attempts to apply this knowledge to design a man-made habitat on Mars that can sustain life for plants and animals.	Student demonstrates no understanding of the relationship between animals/plants and their habitats, and does not attempt to apply this knowledge to design a man-made habitat on Mars that can sustain life for plants and animals.
<b>Solutions for Food, Water and Air Source</b>	Student designs a comprehensive and innovative solution for providing ALL 3 Sources for food, water and air in the man-made habitat on Mars, considering the specific needs of plants and animals.	Student designs a well-thought-out solution for providing food, water and air, but only includes 2 of the 3 sources in the man-made habitat on Mars, considering the needs of plants and animals, with some minor inaccuracies or omissions.	Student designs a basic solution for providing food, water and air, but only includes 1 source in the man-made habitat on Mars, but with significant inaccuracies or omissions in addressing the needs of plants and animals.	Student provides a limited solution for providing food in the man-made habitat on Mars, with minimal consideration of the needs of plants and animals.	Student does not provide a solution for providing food in the man-made habitat on Mars.

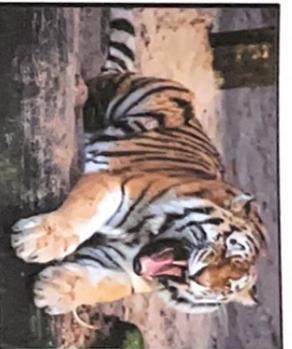
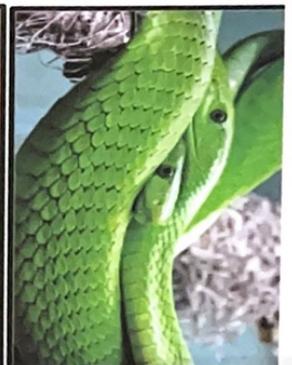
<p><b>Application of 2D and 3D Shapes</b></p>	<p>Student accurately identifies and effectively applies a variety of 2D and 3D shapes to compose larger shapes for the structure of the man-made habitat on Mars.</p>	<p>Student identifies and applies a variety of 2D and 3D shapes to compose larger shapes for the structure of the man-made habitat on Mars, with minor inaccuracies or omissions.</p>	<p>Student identifies and attempts to apply some 2D and 3D shapes to compose larger shapes for the structure of the man-made habitat on Mars, but with significant inaccuracies or omissions.</p>	<p>Student provides limited identification and application of 2D and 3D shapes to compose larger shapes for the structure of the man-made habitat on Mars.</p>	<p>Student does not identify or apply any 2D and 3D shapes to compose larger shapes for the structure of the man-made habitat on Mars.</p>
<p><b>Notes/ Comments</b></p>					

# Living in Space: Man-Made Habitat on Mars

## Writing Component

Criteria	4	3	2	1
<b>Topic and Information</b>	The student includes a clear topic and provides multiple details about the topic using a combination of drawing and writing.	The student includes a topic and provides some details about the topic using a combination of drawing and writing.	The student includes a topic but provides limited details about the topic using a combination of drawing and writing.	The student does not include a clear topic and provides minimal or no details about the topic using a combination of drawing and writing.
<b>Notes/ Comments</b>				

# Animal Images from Habitat Picture Sort (Explore)





## Graphic Organizer (Explore)

# WHAT DO WE NEED TO SURVIVE?

Food

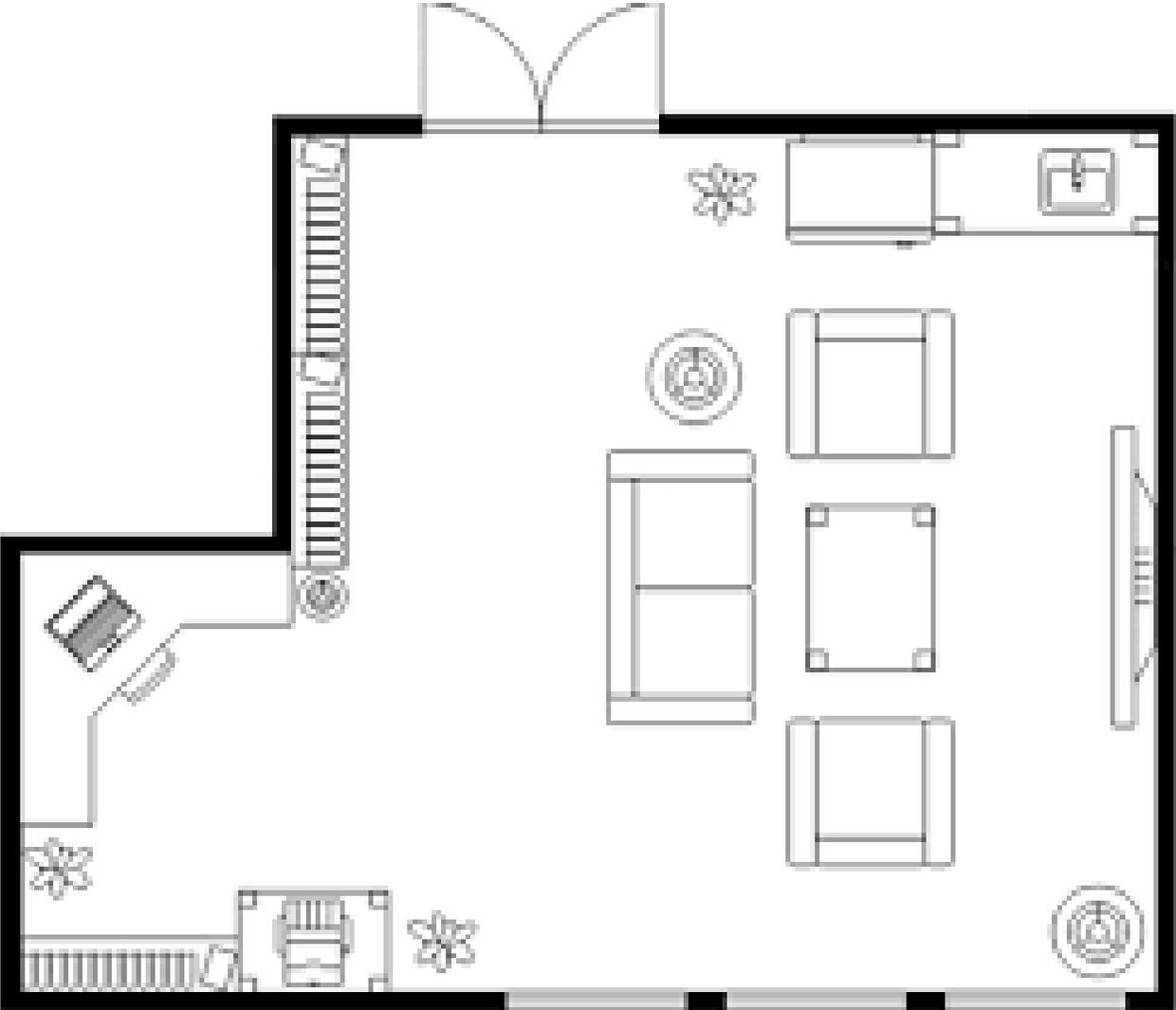
Water

Habitat:

Shelter

Air

# Personal Habitat Template for Modifications (Explore)



Resource and Shapes Checklist (Evaluate)

Resource:	I have a source for this ✓
Food	
Water	
Air	
Shelter	

<b>Shape</b> (draw)	<b>2D or 3D</b>	<b>Amount</b> (tally marks)

## REFERENCES

Lesson Adaptation from [Habitat in Space](#), by Leanna Brazel, Kindergarten Teacher  
Alamosa Elementary School, Alamosa, CO.

[Habitat Images by Bobbie Bates](#)

Canva Templates for graphic organizer