

Brief Narrative

The students are given the task of designing a habitat for an animal which is on the endangered species list. Each habitat will be part of *HaGan Chaiot Chadash—The New Zoo Project*. The goal of the zoo is to create an environment that protects and ultimately supports the repopulation of the animals which might otherwise become extinct. The students utilize their knowledge of area and perimeter to design a habit enclosure to scale. They research the taxonomy of their chosen animal and understand our Jewish duty to care for and protect animals. Throughout the unit the students read Hebrew text and learn both modern and biblical Hebrew vocabulary.

HaGan Chaiot Chadash--The New Zoo Project

A Multidisciplinary Integrated Cross Grade Level Unit

Goal: To design a zoo incorporating a multidisciplinary integrated approach utilizing mathematics, science, language arts, Hebrew, and Jewish Studies.

HaGan Chaiot Chadash—The New Zoo Project is a highly integrated unit that utilizes instructional methods and materials across disciplines and curriculum to organize instruction so that the students are encouraged to make meaningful connections across subject areas. HaGan Chaiot Chadash puts students in charge of designing an ultimate habitat for an animal which is on the endangered species list. The goal of the zoo is to create an environment that supports the repopulation of animals that might otherwise become extinct.

Mathematics Objectives:

- Students will find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes.
- Students will apply these techniques in the context of solving real-world and mathematical problems.★
- Students will apply the formulas for area and circumference of a circle and use them to solve problems.
- Students will solve real-world mathematical problems involving area, volume, and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.★
- Students will interpret expressions that represent a quantity in terms of its context.★
- Students will use coordinates to compute perimeters of polygons and areas of triangles and rectangles.★
- Students will apply geometric methods to solve design problems. ★

★= **STEAM** (Science, Technology, Engineering, Art, and Mathematics)

Hebrew Objectives:

- Students will acquire new Hebrew vocabulary.
- Students will conjugate verbs in present and past tenses.
- Students will read Modern Hebrew text.
- Students will comprehend written Hebrew text relying on learned vocabulary and gathering clues from pictures/illustrations.
- Students will communicate ideas in Hebrew orally and in writing.

- Students will demonstrate an understanding of the science concepts utilizing the Hebrew vocabulary.

Language Arts Objectives:

- Students will compare and contrast the overall structure of events, ideas, concepts, or information in two or more texts.
- Students will write informative/explanatory texts to examine a topic and convey ideas and information clearly.
- Students will engage effectively in a range of collaborative discussions with diverse partners building on others' ideas and expressing their own clearly.
- Students will report on a topic or text or present an opinion, sequencing ideas logically and using appropriate facts and relevant, descriptive details to support main ideas or themes.
- Students will produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

NGSS (Next Generation Science Standards) Objectives:

- Students will understand that classification is the arrangement of objects, ideas, or information into groups, the members of which have one or more characteristics in common.
- Students will identify the five kingdoms of living things,
- Students will evaluate how classification makes things easier to find, identify, and study.
- Students will apply scientific classification to groups of plants and animals on the basis of certain characteristics they have in common.
- Students will identify scientific classification use of Latin and Greek words to give each animal and plant two names (similar to a first and last name) that identify the animal or plant.
- 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.
- Use evidence to support the explanation that traits can be influenced by the environment.
- Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms.
- Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.
- Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.

Jewish Studies Objectives:

- Students will locate passages in the Torah that mention animals and the treatment of animals.

–צער בעלי חיים

- Students will understand the biblical perspective on the relationship between humans and animals through specific mitzvot written in the Torah.
 - Not tying a donkey and an ox to the same plow
 - Feeding animals before one feeds himself

Perek Shira – The Song of All Creation-

- Students will learn that all creation praises Hashem all the time and that specific animals recite specific verses.

Unit Outline

Enduring Understandings

- We have a responsibility for the wellbeing of animals on our planet
- Animals have basic needs include adequate air, food, water, shelter, and space (habitat)
- Animals, including humans, have many different physical characteristics
- Animals can be classified according to a variety of characteristics.

Week One

- Introduce students to the concept of endangered species
 - Discuss the criteria for an animal to make the endangered species list
 - Explore list: <https://www.worldwildlife.org/species/directory>
- Introduce the concept of **צֶעַר בְּעֵלֵי חַיִּים** – **tza'ar ba'alei chayim** We are responsible for looking after and taking care of animals
 - <http://www.jewfaq.org/animals.htm>
 - <https://www.myjewishlearning.com/article/ethical-treatment-of-animals-in-judaism/>
 - <https://www.youtube.com/watch?v=w9lgdWiisQ4>
 - <https://www.youtube.com/watch?v=tobzjD2ofP4>
 - <https://www.youtube.com/watch?v=bVzaausumSY>
 - <https://www.ou.org/torah/mitzvot/meaning-in-mitzvot/tzaar-baalei-chayim/>
 - Provide Hebrew text for vocabulary and understanding
- Have students research and choose an animal.
 - <http://animaldiversity.org/>
 - Great website/data base for all things about animals. Students will find an abundance of information concerning their chosen animal as well as the taxonomy.

Week Two

- Teach about classification and taxonomy
 - PowerPoint and discussion
- Students begin researching and classifying their animals
 - <http://animaldiversity.org/>
 - Use Classification worksheet for notes

Week Three

- Students create a taxonomy poster which emphasizes why the animal belongs in each level.
 - See directions and pictures
 - Animal Classification worksheets
- Begin focusing on the Hebrew vocabulary for the 7 classifications
 - Create Hebrew vocabulary flip book that will go on poster
 - Read Hebrew text for vocabulary

Week Four

- Students should be finishing up their [classification posters](#)
- Introduce/teach/review the mathematical concepts of area and perimeter
 - Make sure students have a strong understanding of both
- Students need to research what their animal will need in order to survive in an enclosure—how much space is needed for two animals (male and female)? What vegetation is needed? Water source? Shelter?
 - All of these elements need to be thought about in their design
- More focus on Hebrew—students can begin to write about their animal in Hebrew

Week Five

- Students continue to put together all of the elements of the display poster
 - Hebrew writing, Hebrew flip books for vocabulary, taxonomy in Hebrew
- Taxonomy in English with explanations is on a separate poster (see [photos](#))
- Students create their designs of the enclosures to scale on grid paper. (we use 1cm graph paper photo copied on to 11 x 17 paper)
 - The designs need to be labeled with area and perimeter measurements and a key/scale should accompany the design (see photos)

Week Six

- Students should finish up this week and present their designs
- We have a sub-unit on how to create a budget for their enclosures which is attached.

