

Design a Zoo

A Multidisciplinary Integrated Cross Grade Level Unit

Integrated: Integrated curriculum refers to an instructional method and materials for multidisciplinary teams of teachers to organize their instruction so that students are encouraged to make meaningful connections across subject areas. General Studies, Jewish Studies, and Hebrew teachers collaborate planning and presenting units and lessons that center around a central real life issue or problem.

Multidisciplinary: Multidisciplinary education involves the combining of two or more academic disciplines into one activity (e.g. a research project). It is about creating something new by crossing boundaries, and thinking across them.

Common Core State Standards: These standards in the areas of Language Arts and Mathematics are designed to be robust and relevant to the real world, reflecting the knowledge and skills that students need for success in college and careers.

STEAM: STEM (**S**cience, **T**echnology, **E**ngineering, **A**rt, and **M**athematics) education is an interdisciplinary approach to learning where rigorous academic concepts are coupled with real-world lessons as students apply science, technology, engineering, and mathematics in contexts that make connections between school, community, work, and the global enterprise.

NGSS: The **N**ext **G**eneration **S**cience **S**tandards are a multi-state effort to create new education standards that are rich in content and practice, arranged in a coherent manner across disciplines and grades to provide all students an internationally benchmarked science education. These guidelines are intended to help students understand the scientific process of developing and testing ideas and have a greater ability to evaluate scientific evidence.

Project Based Learning: In Project Based Learning, students go through an extended process of inquiry in response to a complex question, problem, or challenge. While allowing for some degree of student "voice and choice," rigorous projects are carefully planned, managed, and assessed to help students learn key academic content, practice 21st Century Skills (such as collaboration, communication & critical thinking), and create high-quality, authentic products & presentations.

Inquiry Based Learning: Inquiry Based Learning describes approaches to learning that are based on the investigation of questions, scenarios or problems. Students identify and research issues and questions to develop their knowledge or solutions. Inquiry-based learning includes problem-based learning, and is generally used in small scale investigations and projects, as well as research.

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Goal

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

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.
 - Causing the mother bird to leave its nest before removing eggs
 - 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.