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Introducing the Idea

Project-based learning (PBL) is an idea grounded in both education and endeavor. Kids love calling the shots and making something that makes sense to them, and adults know that school should be about more than just preparing students for tests. For these reasons, 21st-century classrooms are increasingly focused on such concepts as student choice, experiential learning, and the fostering of **soft skills**. *Project-Based Learning: Let's Make a Zoo!* presents a great way to tap into these increasingly valued skills while meaningfully addressing standards and the core curricula.



What Is Project-Based Learning?

Project-based learning is a teaching method that allows students to tackle educational challenges that revolve around large projects. Students work together in groups to solve a problem, address a topic, or design a solution. Together, they think, plan, try, revise, test, and decide. The project usually takes several weeks or even months to complete, and it often involves several multimedia components. From this basic starting point, PBL can go just about anywhere.

Why a Zoo?

Who isn't awed by animals? And who doesn't get excited about special trips to fun places? Most everyone has been to a zoo, and they know what they are likely to see there. This prior knowledge gives young learners a foundation on which to build and grow. And the business of making a zoo lends itself educationally to concepts in science (animals, habitats), mathematics (land area, monetary budgets), writing (informational, persuasive), design, and much more.

What Does This Book Do?

Project-Based Learning: Let's Make a Zoo! is a resource that guides you through every step of a project that will culminate with the transformation of your classroom into a zoo. Students will form teams, handpick animals, and create their own sections of the classroom zoo. Each team will work toward two goals: how to make a zoo that is a great place for their animals to live and one that is also a great place for humans to visit. In the end, teammates will have built a business (based on resources and budgets), designed its look (based on creativity and compromise), and presented their masterworks to their parents and peers. Along the way, they will learn and use skills in the areas of science, math, reading, writing, research, geography, marketing, and more.

Things You and Your Students Will Need

- a classroom (bigger than a closet, smaller than an auditorium)
- a teacher (someone needs to be in charge)
- students (any number between 15 and 40 will do)
- folders (5) in which teams can keep papers
- a copy machine
- art supplies (pencils, markers, scissors, glue, tape, large pieces of cardstock/construction paper)
- STEM supplies (any will do: craft sticks, straws, pipe cleaners, foam pieces, etc.)
- lots of intangible items (curiosity, creativity, adventurousness, teamwork, compromise, etc.)

Stage 1: Getting Started

Set the Stage 1

Zoos are fascinating places to visit. *If we could design our own zoo, what would it be like?*

Stage 1 Summary

Talk about what makes a trip to the zoo such a great way to spend a day. Introduce the project, then learn some basics about the main attractions of any zoo: the animals.

Stage 1 Activities

Day 1

Activity: “You at a Zoo” (page 10) → Begin the project by getting your class thinking about zoos. Copy and distribute this page, then ask students to complete the “Me at the Zoo” section. Discuss the results as a class.

Day 2

Handout or Poster: “Let’s Make a Zoo!” (page 11) → Distribute this page or post copies around the room. After introducing the project, field questions about it. At this time, you may share details about the process (forming teams to work on parts of the zoo) or end result (a walk-through experience for classroom visitors).

Day 3

Lightning Lesson: “Zoo Words” (page 12) → Show students the link between the words “zoo” and “animal.” As you pronounce the sample words (*zoology* and *zoophobia*), stress the syllables. (*zo·ol·o·gy* and *zo·o·pho·bi·a*)

Lightning Lesson: “Two Types of Animals” (page 12) → Illustrate that while there are millions of different animals in the world, all of them can be divided into two main groups based on one simple characteristic: having or not having a backbone.

Applied Activity: “Giraffe vs. Jellyfish” (page 13) → Use this movement game to apply the concept learned in “Two Types of Animals.” Follow the directions and model the movements for your students. As you play the game, record responses. Discuss any wrong answers or disagreements.

Note: There are 10 animals listed on the page, but you may extend the game by calling out the names other animals.

Day 4

Lightning Lesson: “Five Types of Vertebrates” (page 14) → Break the Vertebrates category into five subgroups and talk about the main characteristics of each. In the blank row at the bottom of the page, brainstorm even more characteristics of each group (e.g., birds have beaks and wings, fish have fins and gills).

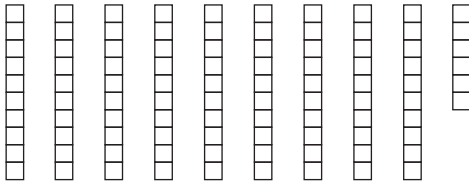

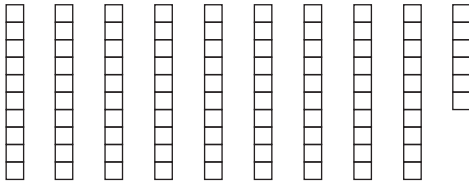

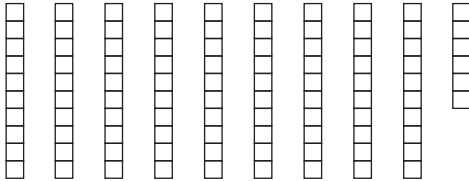

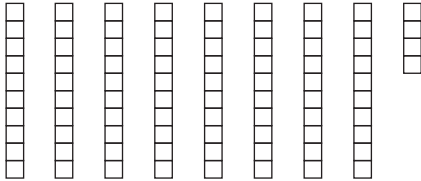

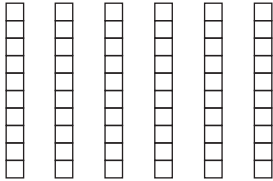

Applied Activity: “Which Type of Vertebrate?” (page 15) → Allow students to call out the names of vertebrates, one at a time. Record the name in the left column, then have the class decide which type of vertebrate the animal is. Check boxes in the third column to determine if each class answer is correct.

In the Zone

No zoo can have every animal. Choices need to be made. Which animals will you and your team have in your zone?

Your team's choices will be based on two things: **land** and **money**.

Each type of animal costs money to feed and take care of. Each type needs enough land to live on.

	Land	Money
Zone 1 Animals of Africa	 96 units of land	 \$100 of money to spend
Zone 2 Animals of Asia	 96 units of land	 \$100 of money to spend
Zone 3 Animals of The Americas	 96 units of land	 \$100 of money to spend
Zone 4 Animals of Australia	 84 units of land	 \$80 of money to spend
Zone 5 A.I.R. Animals	 60 units of land	 \$60 of money to spend

Team 1 Balance Sheet

Animals of Africa

Animals	Land Needed	Cost
Aardvarks	_____ units	\$_____
African Elephants	_____ units	\$_____
Cheetahs	_____ units	\$_____
Chimpanzees	_____ units	\$_____
Fennec Foxes	_____ units	\$_____
Giraffes	_____ units	\$_____
Gorillas	_____ units	\$_____
Meerkats	_____ units	\$_____
Okapis	_____ units	\$_____
Ring-Tailed Lemurs	_____ units	\$_____
Spotted Hyenas	_____ units	\$_____
Zebras	_____ units	\$_____

Show Your Work

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Total Land

(cannot be more than 96 units)

_____ units

\$_____

Total Cost

(cannot be more than \$100)

Habitat Research Form

animal

Animal Type

Check one.

☐ amphibian ☐ invertebrate ☐ reptile ☐ bird ☐ mammal

Habitat Type

Check one.

☐ desert ☐ grasslands ☐ forest ☐ rainforest ☐ tundra

Habitat Features

Check one.

☐ hot ☐ cold ☐ dry ☐ wet
☐ many trees ☐ grassy ☐ sandy ☐ icy

Animal Information

Food Needs: _____

Water Needs: _____

Shelter Needs: _____

Social Needs: _____

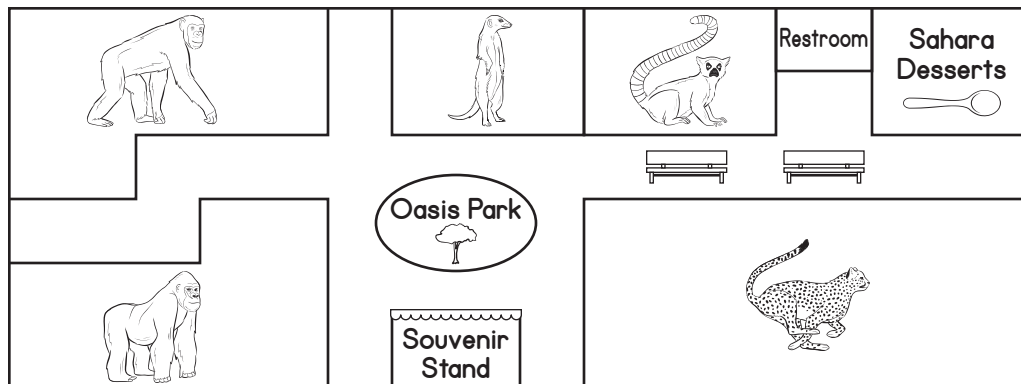
Fascinating Fact: _____

Create a 3D Map

Your team has already created a map of your Zoo Zone to show where all the animals live. But a zoo also needs places for the people who visit to walk, sit, eat, and be comfortable.

Directions: Create a 3D map display of your Zoo Zone.

1. Using a copy of your map from Stage 6, cut out each animal area.
2. Arrange these pieces on a large piece of cardstock or construction paper.
3. Plan with your team to add lots of details to your map:
 - ☐ **Walkways**—Visitors need places to walk between the animal exhibits.
 - ☐ **Restaurant**—You created a great menu, and now you need to make a space for your restaurant.
 - ☐ **Souvenir Shop**—This can be a small space for a souvenir cart or shop.
 - ☐ **Bathroom**—Got to have one of those!
 - ☐ **Benches and Shade Trees**—Give your guests some places to relax on a hot day.
 - ☐ **Stand-Up Animal Cards**—Fold your animal cards in half so that the information is on one side and the picture is on the other. These cards can then be placed on the map to show where each animal lives in your Zoo Zone.
4. Once you have decided where everything should go, glue down the pieces and use markers to draw in the walkways and other details.



5. To put the finishing touch on your 3D map, create a tall sign of your Zone Logo. Design a way to make your logo stand up tall over your zone.