

TANGRAM-ANIMALS

TEACHER'S GUIDE

A repeatable one- to two-day science literacy lesson for students in kindergarten through 5th grade.

Uses the [Tangram Adventure](#)  game.



OBJECTIVES

- Students will be able to identify key features within a grade-level scientific text to search for facts and information about specific animals.
- Students will be able to synthesize information about animals and generate statements and conclusions based on this information.
- Students will be able to demonstrate their learning through informational writing and presentation.

ABOUT THIS LESSON

This lesson is an informational writing research project using the *Tangram Adventure* game, along with grade-appropriate print and online resources. Students will work to solve puzzles and research an animal of their choosing.

This lesson plan is designed to work with any skill level from kindergarten through 5th grade, with varying levels of guidance as necessary. It is recommended that students in kindergarten through 2nd grade only complete Part 1, and for students in grades 3 and up to use Part 1 as a template before completing the rest of the activity.

It may be beneficial to plan a trip to the library after the hook of this lesson, or to acquire the research materials ahead of time.

ELA-LITERACY (SCIENCE) COMMON CORE STANDARDS CORRELATIONS

Kindergarten

W.K.2: 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.

W.K.7: Participate in shared research and writing projects (e.g., explore a number of books by a favorite author and express opinions about them).

1st Grade

W.1.2: Write informative/explanatory texts in which they name a topic, supply some facts about the topic, and provide some sense of closure.

W.1.8: With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.

2nd Grade

W.2.7: Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations).

W.2.8: Recall information from experiences or gather information from provided sources to answer a question.

RI.2.1: Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text.

Standards correlations continue at the end of the document.

Since this activity can be used to research any animal, it can be used over and over for the same students as they learn about all kinds of different animal life, such as insects, reptiles, amphibians, etc.

PROCEDURE

1. Hook

Begin the lesson by challenging each student with one or two of the tangram puzzles, starting with a 1-star difficulty if students have not been exposed to the game before, and working your way up to 2- to 3-star difficulty, or 4-star difficulty for students who want an extra challenge.

2. Instruction

Model for students what they will be doing for this activity, and describe what their final product should look like. Start by choosing one of *Tangram Adventure* puzzles that depicts an animal, then demonstrate how to find facts about that animal in the print or online resources you want students to use.

3. Student Activity

The student activity is broken into two parts. Part 1, the first ~~two~~ pages of the student handout, uses a *Tangram Adventure* animal as a springboard, with guided research question prompts. Part 2 allows students to create their own “Tangr-Animal” and conduct research on that animal.

Part 1

- a. Begin by selecting and solving one of the *Tangram Adventure* puzzles with an animal on it. Below is a list of the animals in the game by difficulty rating:

<u>Puzzle #</u>	<u>Name</u>	<u>Difficulty Rating</u>
1	Horse	*
3	Rooster	*
8	Dog	**
11	Cat	**
13	Seal	**
14	Squirrel	**
15	Penguin	**
18	Duck	**
21	Fox	**
24	Vulture	**
25	Rabbit	**
28	Swan	***
29	Crow	***
30	Bear	***
31	Fish	***

<u>Puzzle #</u>	<u>Name</u>	<u>Difficulty Rating</u>
37	Hippo	***
43	Swallow	****
45	Magpie	****

- b. Next, have students locate the animal they chose in the research resources provided to them. Textbooks, library books, or an online search engine are all good resources students should be able to use. For lower grades, it may be beneficial to help students find the pages they need, or to read the information aloud to them.
- c. Guide students through filling out each of the boxes in the student handout by finding the information they need for each box. If they think they already know the information, make sure they verify it by finding it in the research materials. Allow students to share what they have learned about their animal.

Part 2

- d. Now students pick any animal other than the first animal they researched. For 2nd grade and higher, encourage students to think of a reptile, amphibian, or invertebrate, such as insects or crustaceans. Ask them to use the *Tangram Adventure* pieces to create a tangram puzzle that resembles their animal. By no means does it have to be a perfect representation. Encourage students to illustrate their tangram puzzle to flesh out the animal's appearance, just like the puzzles in the game.
- e. Repeat the research process from Part 1, but for the new animal. For lower grades, feel free to use the first two pages with its guided research prompts again. For higher grades, students should use the last two pages of the student handout, with its more open-ended research prompts.
- f. Allow students to share their puzzles to challenge one another, then share the information they learned about their animals.

4. Conclusion

Spend about five minutes discussing with students what they thought was the easiest thing to research about their animals, and what they thought was the most difficult. Take time to address the solutions and strategies that students used to overcome challenges they encountered.

Assessment

For kindergartners, this lesson may need to be closely guided, by reading aloud information about the animals, asking the prompts verbally, and writing students' answers for them. Conversely, at the 5th-grade level, students may need little to no teacher support or instruction at all. Assessing student learning with this lesson is largely based on discretion and student reflection.

This activity does lend itself to giving presentations or displaying student work, in which case peer assessments and peer feedback could be used in lieu of or in addition to teacher grades.

EXTENSION ACTIVITIES

- **Repeat:** Since the activity in this lesson can be used to research any animal, you can repeat the activity in whole or in part as students learn about other types of animals or ecosystems.
- **Present:** Once students have completed the activity, they could cut out the research prompt boxes, their tangram puzzle, and other images, then paste them on a decorative display board to present the facts about their animal.
- **Fantasy Creature:** Instead of having students research an animal of their choosing, you can allow them to invent a fictional creature and list “facts” about their creature using knowledge they have gained about real animals, mixing and matching characteristics to their liking. For example, a Martian pegasus might have scales instead of hair, hatch from an egg, and eat bacteria.

TANGRAM ADVENTURE ANIMAL

STUDENT HANDOUT

PART 1 - GUIDED

ANIMAL NAME

Penguin

CLASSIFICATION

Is your animal a mammal, bird, or fish, and what does that mean?

My animal is a Bird

Which means it Has feathers, wings, and a beak.

PHYSICAL CHARACTERISTICS

How big is it? What color is it? What covers its body? How does it move?

My animal is black and white

and big for a bird

and is covered by feathers.

My animal has flipper feet

which it uses to walk slow, swim fast, and jump out of the water.

ECOSYSTEM

Where does your animal live? What else lives there?

My animal's home is ice and cold.

Some other plants and animals that also live there are whales, seals, and seagulls.

FOOD CHAIN

Is it a carnivore or herbivore? What does your animal eat?

My animal is a carnivore.

It likes to eat shrimp and fish.

LIFE CYCLE

How is it born? How does it change through its life? How long does it live?

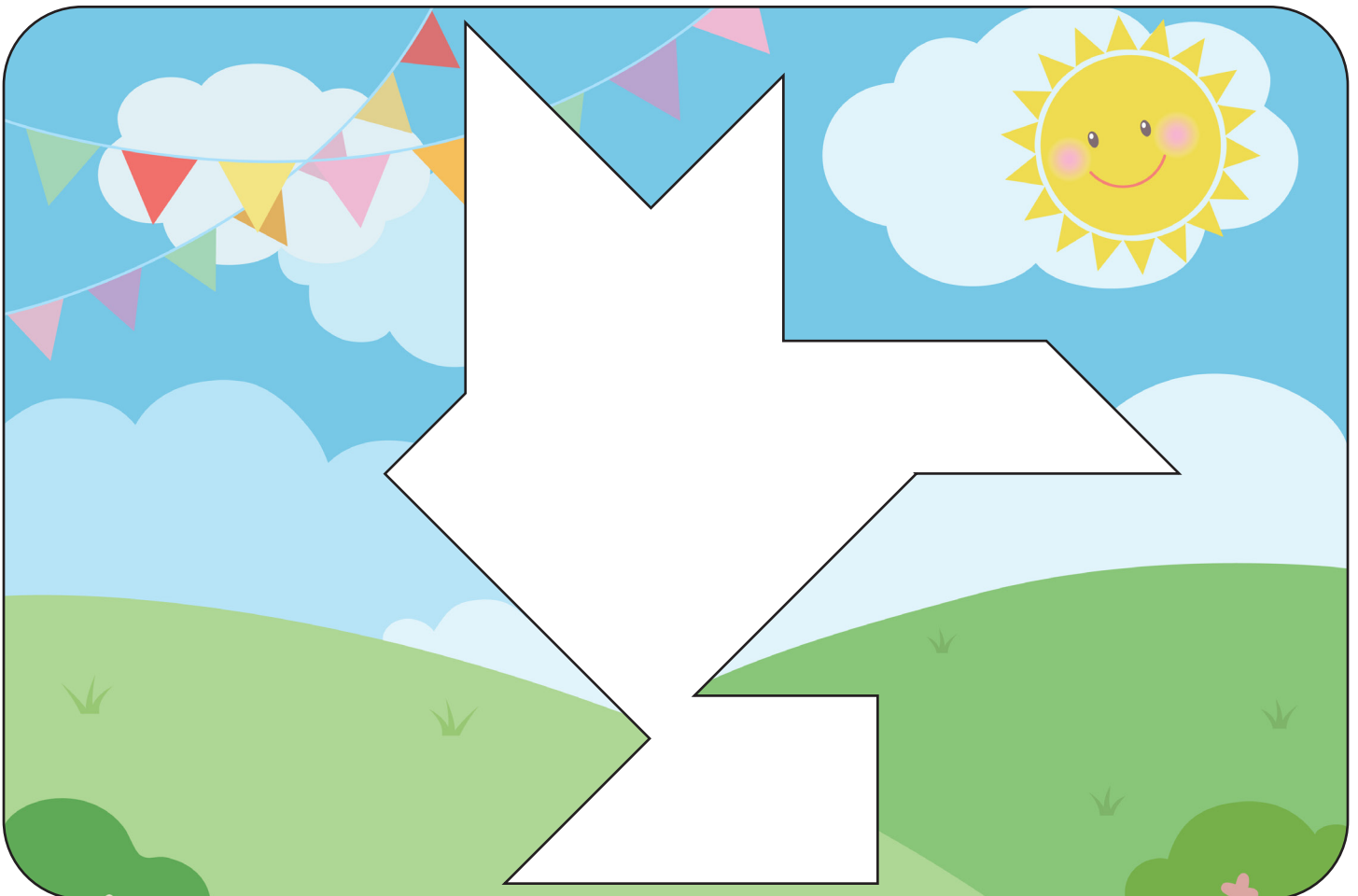
My animal begins life as shrimp and fish.

When it is little, it stays close to its mom and dad.

As it grows up, it finds a mate for life.

It can live as long as 15 years.

MAKE YOUR OWN TANGR-ANIMAL!



PART 2 - OPEN-ENDED

ANIMAL NAME

Frog

CLASSIFICATION

A frog is an amphibian. This means it is cold blooded and lives on land and in water.

PHYSICAL CHARACTERISTICS

A frog is a small green animal with slimy skin. It has webbed feet to swim and long legs to jump.

ECOSYSTEM

Frogs need a wet environment to live in, which might also have bugs, moss, and mud.

FOOD CHAIN

Frogs are carnivores, and they like to eat worms, flies, and other bugs.

LIFE CYCLE

Frogs hatch from underwater eggs, then swim around as tadpoles until they grow legs and can climb out of the water. They can live up to 10 years.

FUN FACTS!

Some frogs are poisonous to eat. Frogs can jump 10 miles per hour but they can swim up to 50 miles per hour. Largemouth bass like to eat frogs, and so does my cousin, Eric.

3rd Grade

RI.3.1: Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.

W.3.7: Conduct short research projects that build knowledge about a topic.

W.3.8: Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories.

4th Grade

RI.4.2: Determine the main idea of a text and explain how it is supported by key details; summarize the text.

RI.4.3: Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.

5th Grade

W.5.7: Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic.

RI.5.10: By the end of the year, read and comprehend informational texts, including history/social studies, science, and technical texts, at the high end of the grades 4–5 text complexity band independently and proficiently.



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