

ODD-one-OUT TEACHER'S GUIDE

A 20–60-minute science literacy lesson for students in grades Pre-K–5.

Uses the [Sudoku Forest](#)  game.



OBJECTIVES

- Students will be able to describe the differences and similarities between a variety of different animals.
- Students will be able to use logic and reasoning skills to sort animals according to predetermined rules, then classify them based on their characteristics.
- Students will be able to use grade-level language to explain their reasoning in detail.

ABOUT THIS LESSON

This lesson uses the game *Sudoku Forest* to introduce the concept of classification of animals, or the general need for a systematic way to categorize things in the world. Very little is required in terms of front-loading instruction, as this activity uses and builds on what students are likely to already know about the animals in this game.

Students will play *Sudoku Forest*, then from a selection of three of the animals, describe which one is the Odd-One-Out. There are many correct ways of interpreting which animal is the most different out of the three, and there are 90 puzzle cards and 84 possible combinations of three animals, so there is a lot of room for variability and repeatability in this activity.

With that in mind, you may find it useful to encourage students to use a variety of animal

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.

characteristics to find the Odd-One-Out, such as size, habitat, class, appearance, diet, etc. Depending on the ability level of your students, and the goals of your lesson, you may choose to emphasize or restrict certain characteristics, allow students freedom to choose their own reasoning, or offer help with guiding questions.

For lower-grade students who are still unable to read or write, have them draw a circle around the Odd-One-Out for each group of three, then explain orally why they think it is different. You can repeat this as many times as you like using Question 4 in the student handout.

This lesson can be extended or condensed in a number of ways depending on your goals with the lesson. There are 90 puzzle cards (cards 14–90 have sets of three animals), so students will have plenty to work with. For higher level students, you may choose to skip directly to Question 5 of the student handout. See extension activities for more details.

PROCEDURE

1. Hook

Begin the lesson by having students learn the rules to *Sudoku Forest* by solving several of the level-1 difficulty puzzle cards (1–12). Once students understand the goal of the game and can easily decipher the clue iconography, move on to one of the level-2 puzzles (14–42), as students must be able to solve level-2 puzzles at a minimum for this activity.

2. Instruction

Review the rules and goal of the game. Then explain the goal of the activity to students. They will need to find the Odd-One-Out in a set of three animals, and give a detailed reason for why that animal is different.

Aside from that, students can jump into the activity without much direct instruction. It may be helpful to model a few examples so students know that they can't get a "wrong" answer as long as they provide detailed reasoning. For example, in the first part of the student handout:



- The pig is different because it isn't covered with fur or feathers.
- The pig likes to be wet and muddy but the bunny and bird like to be clean and dry.



- The bunny is different because its eyes are open and the other animals' eyes are closed.
- The bunny is the only animal with whiskers, and the other two have no whiskers.



- The bird is the only animal that can fly, and the others cannot.
- The bird is different because it lays eggs and the others don't.

3. Student activity

Guide students through the first four questions of the student handout, offering examples as necessary. For a more tactile experience, students can lay the animal tokens from *Sudoku Forest* over the pictures on their handouts. In each section, students should identify which animal they think is the Odd-One-Out, and then provide a concise description of why the animal they chose is different from the other two. Emphasize that if they only describe features of the one animal, they

need to explicitly state how that is different. For example, if students state that a bird has feathers, they should also state that the other animals do not.

For the third page, provide any of the 3x3 grid puzzles (43–90) to students to solve. Once the puzzle is solved, students will pick a row, and then pick a column, and for each one choose which animal they consider to be the Odd-One-Out.

Encourage students to use language and terminology appropriate for their grade level. For example, pre-K and kindergarten students may only be able to circle and verbally explain their choice. Some first and second grade students may struggle to legibly write full sentences, so one- or two-word written responses may be appropriate. Third through 5th grade students should try to use full sentence structure with transition words.

4. Conclusion

To close out the lesson, have students sort the animals into three groups based on categories of their choosing, such as birds, mammals, and amphibians; small, medium, and large animals; etc. Then discuss with students how categorization of different things is both important and sometimes difficult. It is a skill that requires careful thought and attention to detail.

ASSESSMENT

The primary purpose of this activity is to help students develop attention to detail. There are many correct answers for any given set of three animals, so as long as a student can explain why a specific animal is different from the other two, they have accomplished the task. The best way to assess student learning for this activity is direct observation.

EXTENSION ACTIVITIES

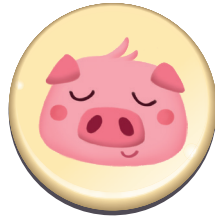
If you want to use this activity for more practice or opportunities for student learning, consider these extension activities:

- **Diagonals.** The last part of this activity uses rows and columns to select three animals. You can also have students use diagonals.
- **All Rows & Columns.** To get the most from this activity, have students describe the Odd-One-Out for all three rows and all three columns.
- **Tic-Tac-Toe.** Have students challenge each other to a game of tic-tac-toe on the puzzle solution. In order to claim a spot on the grid, students must describe how that spot is the Odd-One-Out from a row, column, or diagonal set of three.
- **Make a Puzzle.** Present a different puzzle to each student. Once they solve it, ask them to write color-coded descriptions of the Odd-One-Out for each row, column, and diagonal, but without naming the animals. For example: "In the blue column, the odd animal is the one that flies, the other two sit in muddy water all day and cannot fly." Then see if another person can solve the puzzle using only the written clues instead of the clue icons on the puzzle.
- **Debate.** Present a random set of three animals to two students and allow them to choose which they each think is the Odd-One-Out. If they match, then move on to another set of three, until they disagree. Then give each student one minute to convince the rest of the room that their explanation is the best for why they chose their animal as the Odd-One-Out.

ODD-ONE-OUT

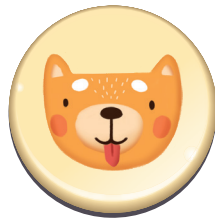
STUDENT HANDOUT

1. Which animal is not like the others? What makes it different?



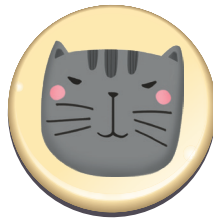
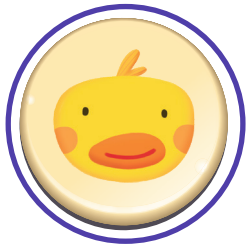
Bird can fly. Pig and bunny can't fly.

2. Which animal is not like the others? What makes it different?



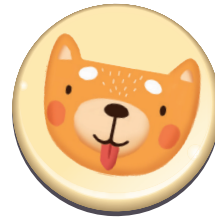
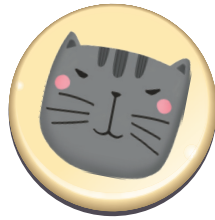
Frog has googly eyes with white in them. Dog and hippo have black dot eyes.

3. Which animal is not like the others? What makes it different?



Duck has a beak. Cats and Pandas don't have beaks.

4. Put three different animals you choose in these spaces. Which of these animals is not like the others? What makes it different?

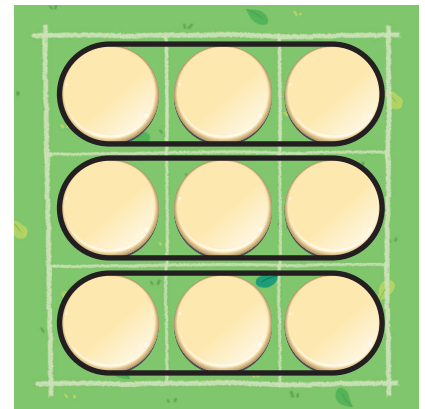


Hippos are not pets. Cats and dogs are pets that live in peoples' houses.

5. Solve a puzzle with nine squares and then describe the animals.

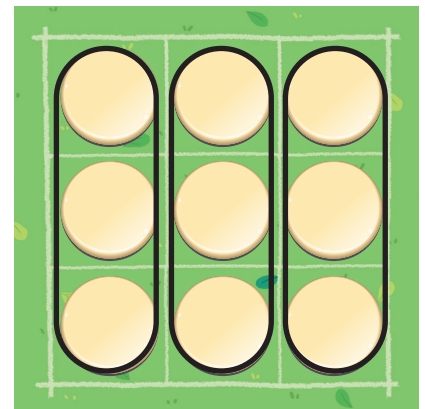
Pick one of the rows: Top, middle, or bottom. In the row you picked, which animal is the most different? What makes it different from the others?

Top: Bunny has tall ears. Frog and bird don't have ears at all. (Puzzle 46)



Now pick one of the columns: left, middle, or right. In the column you picked, which animal is the most different? What makes it different from the others?

Middle: Birds can fly. Pigs and Hippos can't fly. (Puzzle 46)



3rd Grade

L.3.6: Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect.

4th Grade

L.4.6: Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal precise actions, emotions, or states of being

(e.g., quizzed, whined, stammered) and that are basic to a particular topic (e.g., wildlife, conservation, and endangered when discussing animal preservation).

5th Grade

L.5.6: Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal contrast, addition, and other logical relationships (e.g., however, although, nevertheless, similarly, moreover, in addition).



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