Listening and Logic

LEVEL: Low Intermediate and above

TIME REQUIRED: 45 minutes

GOALS: To practice listening for details; to practice or review vocabulary; to use teamwork and logic to solve puzzles

BACKGROUND: The word *logic* refers to a systematic, reasoned way of thinking, usually used to solve a problem or to understand a situation. Logic grid puzzles include a graphic organizer (in this case, a grid) that helps students keep track of information in the puzzle's clues, use the process of elimination, and make inferences that will lead them to the puzzle's solution.

The puzzles in this activity require members in a student pair (or small team, if you prefer) to communicate actively. Nobody in the pair or team has all the information needed to solve the puzzle. Students can share their clues orally, but they can't show each other the written information. Therefore, everyone must listen carefully to identify important details. Beyond developing listening and critical thinking skills, these puzzles are a fun and challenging way for students to practice speaking, review vocabulary, and apply social skills related to teamwork.

The activity instructions and first two puzzles use the theme of ordering food in American restaurants. Puzzles related to free-time activities, pets, and birthdays are also provided. Teachers and students can create their own logic puzzles by following the steps in the Extension section.

MATERIALS: Copies of the logic grids and clues, scissors, blackboard and chalk or whiteboard and markers, and pencils or pens

PREPARATION:

1. Review vocabulary in the logic grid puzzles to determine whether any words or phrases need to be presented or reviewed.

2. Photocopy and cut up the logic grids and clues so that you have one puzzle set for each pair of students. (A puzzle set includes a logic grid for the partners to share and one list of clues for each partner.) See the Variation section for a photocopy-free option in which students draw their own grids.

PROCEDURES:

1. Tell students they are going to work together to solve puzzles. Explain that to demonstrate the process, you and the class will work together to complete a puzzle about people's food orders in an American restaurant.

2. Present or review any target vocabulary items you have identified. Use descriptions, text, drawing, miming, elicitation, or other preferred techniques.

3. Explain to students that they will use these vocabulary items and a graphic organizer called a logic grid to figure out which person ordered each meal. Model how to complete a logic grid

by using provided clues about breakfast orders:

- Draw the following grid on the board. Write the list of clues below the grid.

	Scrambled eggs and sausage	Omelet with cheese and toast	Yogurt with fruit and honey
Paul			
Kevin			
Carol			

  - Paul does not like to eat sweet things for breakfast.
  - Carol does not like eggs.
  - Kevin always eats eggs and meat for breakfast.

- Tell students, "Three people, named Paul, Kevin, and Carol, have ordered breakfast. One person ordered scrambled eggs and sausage; another ordered an omelet with cheese and toast; and the other ordered yogurt with fruit and honey. Which person ordered each breakfast?"

- Explain that the breakfast orders are listed across the top of the grid, and the people's names are listed in the left-hand column. Tell the students they must use the clues to identify each person's breakfast order. Explain that each person ordered a different meal.

- Work through the clues with the class and show them how to mark a logic grid to keep track of the information. Ask a volunteer to read the first clue aloud. Ask the class to tell you which item Paul did *not* order since he doesn't like sweet things for breakfast (the answer is "yogurt with fruit and honey"). Put an X in the box that aligns with "Paul" and "yogurt with fruit and honey," and tell students that an X represents an incorrect combination of person and meal choice. Depending on your students' level, you can explain that this logic technique of removing incorrect information from a problem is called "the process of elimination."

Omelet with cheese and toast

- Repeat the process with the next clue. Since Carol doesn't like eggs, you can place an X in each of the first two columns in Carol's row:

	Scrambled eggs and sausage	Omelet with cheese and toast	Yogurt with fruit and honey
Paul			X
Kevin			
Carol	X	X	

- Ask the students if they know what Carol ordered, since two choices have been eliminated. When they reply, "Yes, yogurt with fruit and honey," place an O in the box that aligns with "Carol" and "yogurt with fruit and honey." Explain that an O represents a correct match. Also, put an X in the middle square in the last column to show that only Carol ordered yogurt with fruit and honey (and that therefore, Kevin didn't).

	Scrambled eggs and sausage	Omelet with cheese and toast	Yogurt with fruit and honey
Paul			X
Kevin			X
Carol	X	X	O

- Have a volunteer read the last clue aloud. Ask students if they know which item Kevin ordered (scrambled eggs and sausage). Place an O in the box that aligns with "Kevin" and "scrambled eggs and sausage." Then demonstrate that since you know which item Kevin ordered, you can put an X in the remaining empty box in his row. Marking that information solves the rest of the puzzle through the process of elimination: you know that only one person, Kevin, ordered scrambled eggs and sausage, so you can put an X in the box that aligns with "Paul" and "scrambled eggs and sausage." After that information is marked, the only possible combination that remains is that Paul ordered the omelet with cheese and toast:

	Scrambled eggs and sausage	Omelet with cheese and toast	Yogurt with fruit and honey
Paul	X	O	X
Kevin	O	X	X
Carol	X	X	O

- Conclude your demonstration by writing on the board each person's name and the breakfast he or she ordered:

  Paul – omelet with cheese and toast

  Kevin – scrambled eggs and sausage

  Carol – yogurt with fruit and honey

4. Put students into pairs. If you have a large class, you can put students into groups of 4 or 6 and then divide each group into two teams of 2 or 3. Tell the students they will now work with their partner (or partner team) to solve a more complicated logic grid about food orders.

5. Tell the class that each partner (or partner team) will have a different set of clues. Students must not show their clues to their partners. Partners must solve the puzzle by taking turns talking about the clues, listening carefully for details, agreeing on the clues' meaning, and then using a logic grid to mark their progress. The two partners (or partner teams) will share the same logic grid.

6. Pass out the clues and the logic grids (see page 49), and tell students they may want to use a pencil to complete the grid in case they need to make changes. Remind students not to show each other their clues. Based on your students' English proficiency level, decide on the amount of time they will have to solve the puzzles; share that information with the class. Tell the partners (or partner teams) to begin solving the puzzle. When they are finished, the students should write a list showing each person's food order.

7. Monitor the students' progress and answer any questions that arise. When students think they have the solution, they should check their answers with you (solutions to the logic puzzles are on page 52) or compare answers with another pair or group. Partners that finish first can begin another puzzle, make their own logic grid puzzle (see the Extension), or complete another activity, such as silent reading.

8. When time is up, briefly review the solution with the whole class. If some partners (or partner teams) are still working, encourage the students who have finished to share their logic strategies with the group.

EXTENSION: MAKE YOUR OWN LOGIC GRID PUZZLES

Working in pairs or small groups, students can make their own puzzles using themes related to class content or other topics. To begin, pairs pick a theme, decide how many items to include in the puzzle (usually not more than six), and then develop two lists that contain equal numbers of names (people, animals, or other characters) and "mystery" targets. Examples include five people and five different movies they want to see this weekend, six animals and their six habitats, and four people and their four favorite sports.

Next, pairs draw a blank logic grid of the appropriate size, writing the names (first column) and target items (first row) as shown in this activity's grids. Then pairs create the solution to the puzzle by matching each name to a different target item. Finally, they work backwards to develop a list of clues, testing each clue by marking the grid as they write it to make sure their logic is sound. Working together to develop and test clues can spark dynamic student conversations and provide a bit of writing practice, too! When students finish creating a puzzle, they should give it to another pair or small group to try.

VARIATION

If you cannot photocopy the puzzles, students can create their own materials with your support. Before class, write each set of clues in large letters on a separate piece of poster paper. Follow Steps 1 through 3 above. When putting students in pairs, in Step 4, arrange the class so that all pairs or partner teams sit facing each other; that is, all students in one half of the pair face one classroom wall, and the other students face the opposite wall. Complete Step 5. During Step 6, post the clues on opposite walls so that each half of the student pairs (or partner teams) can see only one set of clues. (Note: If you have a large class, you may need to post more than one copy on each wall.) Draw the logic grid on the board so that all can see it. Have the pairs copy the grid on a piece of paper to share. Remind students not to turn around and look at the clues posted behind them. Proceed with the rest of the steps described above.

This activity was written by **Heather Benucci**, an EFL teacher, teacher trainer, and materials development specialist. She has led virtual professional development programs for EFL teachers in over 100 countries and has worked face-to-face with teachers and students in Russia, Korea, England, and the United States.

Logic Grid Puzzles 4 and 5 were written by *English Teaching Forum* staff.

Logic Grid Puzzle 1: What's for Lunch? (Intermediate)

Match each person to his or her lunch order. Everyone has ordered something different.

	Cheeseburger and French fries	Salad (lettuce and tomatoes) and vegetable soup	Steak and French fries	Cheese pizza	Baked fish with rice and spicy vegetables	Chicken sandwich with cheese and potato chips
John						
Katie						
Raul						
Maria						
Sheila						
Peter						

Clues — Set 1 You can read and talk about the clues, but don't show them to the person or people you are working with!	Clues — Set 2 You can read and talk about the clues, but don't show them to the person or people you are working with!
• Maria and Peter don't need a spoon or a fork to eat lunch. • John did not order French fries. • Sheila eats healthy vegetables at every meal. • John thinks cheesy foods have too many calories, so he doesn't order them.	• Raul is allergic to dairy products (foods made from milk). He can't eat them. • Katie is a vegetarian. She doesn't eat meat (beef, chicken, pork, or lamb) or fish. • Peter always orders French fries, but Sheila never eats fried or spicy foods. • John thinks salads are boring. He likes spicy foods.

Logic Grid Puzzle 2: Who Ate What? (Upper Intermediate)

Match each person to his or her breakfast order. Everyone has ordered something different.

	Tomato and cheese omelet, coffee	Fried eggs, orange juice	Oatmeal (porridge), coffee	Toast and strawberry jam, coffee	Spinach and mushroom omelet, tea	Hard-boiled eggs and fried potatoes, tea
Sarah						
Inna						
Mike						
Alice						
Kelly						
Richard						

Clues — Set 1 You can read and talk about the clues, but don't show them to the person or people you are working with!	Clues — Set 2 You can read and talk about the clues, but don't show them to the person or people you are working with!
• Mike wears glasses to read the newspaper while he eats breakfast alone. • Kelly is wearing a green sweater, Alice is wearing a black dress, and Inna is wearing a purple shirt. • Richard has a mustache, and Mike has a beard. • Kelly, Inna, and Alice are having breakfast together. • Richard and Sarah are sitting at the same table.	• The person wearing black and Richard both ordered omelets. • The person wearing glasses ordered an egg dish. • The person wearing green and the person having breakfast with the man who has a mustache never order eggs for breakfast. • The person with a beard doesn't like coffee or tea, but the person eating with Sarah always drinks coffee with breakfast. • The person eating with Inna and Alice loves toast with jam.

Logic Grid Puzzle 3: Having Fun! (Intermediate)

Can you figure out what each of these people likes to do in his or her free time? Remember, every person likes a different activity.

	Swimming in the ocean	Reading books at the library	Playing soccer (outside)	Playing basketball (outside)	Going shopping	Surfing the Internet at a café
Erin						
Jenny						
Olga						
Bob						
Julio						
Mark						

Clues — Set 1 **You can read and talk about the clues, but don't show them to the person or people you are working with!**	**Clues — Set 2** **You can read and talk about the clues, but don't show them to the person or people you are working with!**
• The two people whose names begin with the same letter prefer outdoor activities. • Erin likes to exercise in her free time. • Julio and Erin don't know how to swim. • Jenny and Erin don't like to play basketball.	• Bob and Olga can enjoy their favorite activities alone. • Mark doesn't need a ball to enjoy his favorite activity. • Mark's and Bob's favorite activities can make their eyes tired. • Mark likes to read blogs, watch videos, and read the news in his free time.

Internet café

Logic Grid Puzzle 4: Pets (Low Intermediate)

A family has four pets: a dog, a cat, a bird, and a fish.
The colors of the pets are brown, white, black, and gray. Which color is each pet?

	brown	white	black	gray
dog				
cat				
bird				
fish				

Clues — Set 1 **You can read and talk about the clues, but don't show them to the person or people you are working with!**	**Clues — Set 2** **You can read and talk about the clues, but don't show them to the person or people you are working with!**
• The white pet has four legs. • The gray pet does not have feathers. • The dog is not black.	• The black pet cannot fly. • The gray pet does not bark. • The brown pet and the gray pet do not live in water.

Logic Grid Puzzle 5: Birthdays (Intermediate)

Four sisters—named Martha, Angela, Juanita, and Olive—were born in different months: March, April, July, and October. Which sister was born in which month?

	March	April	July	October
Martha				
Angela				
Juanita				
Olive				

Clues — Set 1 **You can read and talk about the clues, but don't show them to the person or people you are working with!**	**Clues — Set 2** **You can read and talk about the clues, but don't show them to the person or people you are working with!**
• Juanita's birthday comes before Olive's. • Olive was born in a month that has 31 days. • Martha's and Angela's birthdays are exactly six months apart. • Juanita's and Angela's birthdays are one month apart.	• Martha does not have the first birthday of the year. • Angela's birthday is not the last birthday of the year. • There is an "r" in the name of Martha's month. • Only one sister was born in a month that starts with the same letter that her name starts with.

SOLUTIONS

Logic Grid Puzzle 1: What's for Lunch?
John – baked fish with rice and spicy vegetables
Katie – cheese pizza
Raul – steak and French fries
Maria – chicken sandwich with cheese and potato chips
Sheila – salad and vegetable soup
Peter – cheeseburger and French fries

Logic Grid Puzzle 2: Who Ate What?
Sarah – oatmeal, coffee
Inna – hard-boiled eggs and fried potatoes, tea
Mike – fried eggs, orange juice
Alice – spinach and mushroom omelet, tea
Kelly – toast and strawberry jam, coffee
Richard – tomato and cheese omelet, coffee

Logic Grid Puzzle 3: Having Fun!
Erin – playing soccer
Jenny – swimming
Olga – going shopping
Bob – reading books
Julio – playing basketball
Mark – surfing the Internet

Logic Grid Puzzle 4: Pets
dog – white
cat – gray
bird – brown
fish – black

Logic Grid Puzzle 5: Birthdays
Martha – October
Angela – April
Juanita – March
Olive – July