

# Turning Logic-Grid Puzzles into a Communicative Activity

by GAVIN YOUNG

**LEVEL:** High Beginner and above

**TIME REQUIRED:** Initially 45 minutes; less time on subsequent puzzles

**GOALS:** To practice listening for details and, if necessary, asking for clarification; to review and practice using vocabulary; to use teamwork and logic to solve puzzles

**MATERIALS:** Grids and fact sheets (and information handouts, if used) must be prepared in advance; these can be printed out and copied or written on a white/blackboard or on poster paper, or they can be projected on a screen.

## **BACKGROUND:**

Getting students to interact can be challenging because they have varying language skills, speak at different rates, and often do not ask for clarification. Students need opportunities to practice speaking clearly and carefully, encoding information

that is easier to understand. Likewise, they need to practice asking for clarification and decoding information. To encourage my students to practice using encoding and decoding strategies as well as develop their analytical skills, I use logic-grid puzzles that are adapted for the language-learning classroom.

A logic-grid puzzle gives a set of clues and asks you to use deduction and the process of elimination to determine the correct placements of information on a supplied grid. Free websites are available to help you become more comfortable with logic-grid puzzles (Figure 1). This article expands on the *English Teaching Forum* article “Listening and Logic” (Benucci 2015); here, the focus is on instructing teachers how to create their own logic puzzles that then can be used to practice oral communication and to review vocabulary.

Logic-grid puzzle activities are relatively easy to prepare and implement, and they are

<https://www.brainzilla.com/logic/logic-grid/>  
<https://logic.puzzlebaron.com/init.php>  
<https://www.braingle.com/brainteasers/Logic-Grid.html>

**Figure 1. Some free logic-grid puzzle websites**

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**Logic-grid puzzle activities are relatively easy to prepare and implement, and they are highly adaptive and can be targeted to specific topics.**

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highly adaptive and can be targeted to specific topics. The preparation explained below involves making a grid, but if you do not have access to a personal computer, you can easily create one by hand.

Teachers are encouraged to use their textbook’s vocabulary. That reduces the time spent in materials preparation; in addition, students are already familiar with the vocabulary. By reusing vocabulary that the students have already used but may not have fully understood, teachers can help reinforce the learning of these words.

This type of activity is also beneficial for continuing teacher education. When I have used logic-grid puzzles in workshops, the teachers recognize the merits of the activity and agree that it is simple to implement in their own classrooms. In workshops, teachers can practice making puzzles and then swap with other participants to stockpile a selection of ready-to-use puzzles.

**PREPARATION:**

Logic-grid puzzles can be a timed activity, taking as little as ten minutes, or you can plan it as an activity that lasts until one team completes the puzzle. There are six main preparation steps:

1. *Draw the grid.* Create a simple 5 x 5 grid on paper with a pen or pencil or on a computer. The grid could also be 4 x 4 or 3 x 4 . . . ; you can choose as many categories and/or entries as you like. Just understand that the more categories you add, the more difficult the puzzle will be and the more time it will take for students to solve. In my experience, a 5 x 5 grid takes students about 15 to 20 minutes to finish.
2. *Make up a scenario.* With a 5 x 5 grid, you will want to pick five categories. Smaller puzzles with fewer categories and clues may be more suitable for younger or lower-level students and are easier to create. Since my example puzzle is about students, the categories I chose were *name, major, club, hometown, and room number*. I penciled in the categories in the top row, as shown in Figure 2. (For examples of other possible scenarios and categories, see Figure 3.)
3. *Assign values (fill in information).* Fill in each box, as shown in Figure 4.
4. *Work backward to create clues.* Once you have filled in the grid, work backward and create clues (statements) that will allow students to deduce the information that belongs under

Name	Major	Club	Hometown	Room Number
Aya				
Haruka				
Daiki				
Tom				

**Figure 2. An example of a puzzle grid with categories and student names filled in**

*Examples of possible scenarios and categories*

Air travel (name, destination, departure time, gate number, airline, etc.)

Art (name, favorite color, favorite artist, favorite art style, etc.)

Books (name, title, genre, author, number of pages, etc.)

Clothing shopping (name, shop name, article of clothing, price, time spent, etc.)

Coming to school (name, transportation mode, time needed, cost, distance traveled, etc.)

Daily activities (name, wake-up time, breakfast food, first class subject, etc.)

Day at the zoo (name, age, favorite animal, souvenir bought, etc.)

Dinner (name, mealtime, number of family members, usual foods, chore, etc.)

Grocery shopping (name, shop name, fruit variety, price, etc.)

Habits (name, evening activity, how long, bedtime, etc.)

Health (name, weight, age, exercise time, sport, calories burned, etc.)

Hospital departments (name, age, department, floor, years as a doctor, etc.)

Household chores (name, chore, day of the week, time of day, equipment used, etc.)

International weather (name, country, season, weather, temperature, etc.)

Japanese sushi (name, favorite fish, number of plates, place in booth, etc.)

Mountains (explorer's name, mountain, year climbed, location, length of climb, etc.)

Movies (name, movie title, lead actor, show times, snack, movie genre, etc.)

Musical instruments (name, age, musical instrument, number of years practiced, etc.)

Part-time job (name, place of work, number of hours, salary, etc.)

Shoe shopping (name, kind of shoe, maker, size, cost, etc.)

Sick today (name, symptoms, temperature, favorite food when sick, etc.)

Sports club (name, club, number of members, player number, etc.)

Sports game (name, points scored, fouls, minutes played, etc.)

**Figure 3. Examples of possible scenarios and categories**

each category. The number of clues will depend on the number of group members you plan on having. In my example, I created fact sheets with clues for four members of a group (Figure 5). The simplicity/complexity of the clues will depend on the skill levels of your students. In this case, I made a list of 24 clues so that I could divide them evenly into four parts, one for each student in each group.

Along with stating details about the characters, mix in statements that say what a character does not have or does not do (“The engineering student is not from Osaka.”). You can add statements that refer to the interrelationship of information and do not refer directly to the characters themselves (“The archery club member is from Osaka.”). You can add neither/nor statements (“Aya is neither an economics major nor an art major.”), unaligned-pair clues (“Of Daiki and the person from Sendai, one is on the archery club and the other studies engineering.”), and multi-elimination clues (“The four students are Tom, the archery club member, the person from Kyoto, and the person living in Room 101.”).

Try to limit the number of clues so that each group member has no more than five or six statements; you don’t want to drown students in information to read. To make the puzzle more fail-safe, you can add redundant clues—two statements that lead to the same conclusion.

On the fact sheet, I write the clue twice. This requires students to read the information twice to their peers, enabling better comprehension, and it creates a natural opportunity for other members to demonstrate understanding by echoing back the key point. I use a turtle icon on the fact sheet to remind students to read slowly and a sound-wave icon as a reminder to read loudly, along with simple instructions explaining that students need to read the clues word for word.

One more tip about the fact sheets: Before class, you can completely separate the four parts of the fact sheet for distribution to the four group members. Or, if time is limited, you can separate them partially with scissors—that is, cut them *almost* all the way across—and group members could then pull apart the four sections themselves.

5. *Test solve.* Make sure the clues (including redundant ones) are spread evenly amongst all group members and lead to a clear solution. It is preferable to do this with fresh eyes or when you are well rested and able to concentrate fully. Or, better, enlist a colleague to check the puzzle by using a simple rubric (correct grammar; well-divided clues; level-appropriate vocabulary; sensitivity to issues such as race, gender, age, disabilities; etc.).
6. *Prepare a handout and print out materials.* Prepare a handout showing instructions and an empty grid with the categories

Name	Major	Club	Hometown	Room Number
Aya	Engineering	Futsal	Sendai	101
Haruka	Economics	Swimming	Kyoto	104
Daiki	Art	Archery	Osaka	102
Tom	Agriculture	Lacrosse	Seattle	103

**Figure 4. An example of a puzzle grid with information filled in**

**Read each clue slowly  and loudly .** *Student A's Clue Sheet*

1. "Aya's nearest neighbor is from Osaka."
2. "The person in Room 101 is not from Seattle, Kyoto, or Osaka."
3. "Two other people live between Aya and Haruka."
4. "Listen carefully. The student who studies agriculture lives between two students but doesn't live next to the engineering student."
5. "The art major lives between Aya and Tom."
6. "The student from Kyoto is on the swimming club."



**Read each clue slowly  and loudly .** *Student B's Clue Sheet*

1. "Aya and Haruka are from Sendai and Kyoto. So, where is Daiki from?"
2. "Daiki lives in a room with a lower number than Tom's room."
3. "The engineering student is not from Osaka."
4. "Aya is neither an economics major nor an art major."
5. "Daiki is on either the archery club or the futsal club."
6. "The student who studies art lives between two students but doesn't live next to the economics student."



**Read each clue slowly  and loudly .** *Student C's Clue Sheet*

1. "Haruka's closest neighbor is on the lacrosse club."
2. "Listen carefully. This is a long clue. Of Daiki and the person from Sendai, one is on the archery club and the other studies engineering."
3. "The archery club member is from Osaka."
4. "Daiki is on either the archery club or the swimming club."
5. "The student from Seattle lives between the swimmer and the art major."
6. "When Tom is in practice or a match, he carries a stick and wears a helmet."



**Read each clue slowly  and loudly .** *Student D's Clue Sheet*

1. "The art student is good at shooting arrows."
2. "Haruka is the best in the 200-meter freestyle event."
3. "The engineering student's club practices indoors on a hard court."
4. "The student from Sendai is on the futsal club."
5. "The futsal club member lives in either Room 101 or Room 104."
6. "I have information about Tom. Tom does not study engineering, economics, or art."

**Figure 5. Fact sheet with clues for four group members; teachers might want to cut almost all the way across the sheet between the four parts so that students can easily separate them in their groups.**

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This requires students to read the information twice  
to their peers, enabling better comprehension.**

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and name entries (Figure 6), and fact sheets for group members (Figure 5). Especially with lower-level students, you can include a leadoff entry in the grid, as shown in red in Figure 6. This entry gives students a starting point for solving the puzzle: “Aya lives in Room 101.”

You can prepare these items by hand or on a computer, in a document or spreadsheet.

**PROCEDURE:**

1. In preceding classes, have pairs of students practice dictation exercises, along with asking-for-clarification and confirm-understanding activities.
2. Separate students into groups of four. One member will come to the teacher for handouts and fact sheets. If possible, members sit at a distance of 1.5 meters from each other due to COVID protocols. This is an advantage because it impedes whispering and obliges members to speak more loudly. (This is not possible in all classrooms, of course.)
3. Introduce the activity by copying the empty grid onto a white/blackboard or, if PowerPoint is available, into a slide. Explain to students that they will do an activity in which they must share information orally with their group members and that comprehensibility is a must. For the example given, you can say, “There are four new friends at university. In your groups, find out students’ majors, their sports clubs, their hometowns, and their room numbers.”
4. Introduce new vocabulary (although this should be minimal) and practice pronunciation.
5. Allow students about three to five minutes to read and comprehend their fact sheets and to fill in their own grids with this information. Circulate and assist students as needed.
6. Explain a method for solving the puzzle. If you have provided an entry in the handout’s grid, that Aya lives in Room 101 (Figure 6), explain that students who have clues related to that entry should read them first. Students with clear, incontrovertible information could also go first. Information that is related to the revealed clues should follow. If stuck, a member should ask, “Does anyone have more information about the \_\_\_\_\_ clue or about [person’s name]?”
7. Remind students to speak slowly and loudly and to ask for clarification from other members. Display useful English phrases on a white/blackboard or on PowerPoint slides—for example, “Could you repeat that, please?” Clarification with question words like *Who*, *Which*, and *What* is also useful for students.
8. Students continue until all the boxes in the grid are filled in or until the time is up. If your class has a wide range of proficiency levels, you may want to offer hints or support to struggling groups. If you have a class where students are mostly equal in language proficiency, you might informally have a “winner”—the group that finishes first. There can also be second- and third-place winners.

## Nice Neighbors

**Four students started school at City University.  
They live in the same dormitory, on the first floor.**

### General Information

Four students: Aya, Haruka, Daiki, Tom  
School majors: Agriculture, Art, Economics, Engineering  
Clubs: Archery, futsal, lacrosse, swimming  
Hometowns: Kyoto, Osaka, Seattle, Sendai  
Room numbers: 101, 102, 103, 104

### Instructions

- 1) Each group member has a different fact sheet.
- 2) Don't show your fact sheet to your group members.
- 3) Share information slowly and clearly.
- 4) Fill in the empty boxes below.

Name	Major	Club	Hometown	Room Number
Aya				101
Haruka				
Daiki				
Tom				

**Figure 6. Example of a student handout with general information, instructions, and a grid**

- 9.** You may find that groups finish at different times. To keep all students engaged, plan a follow-up activity. Once each group finishes, have the group members answer questions (collectively) using the emphasized vocabulary. Additionally, ask them to discuss what was difficult about the activity and what they might do differently the next time. Meanwhile, you can assist groups that are still working on the puzzle.

### **VARIATIONS**

- 1.** It may be difficult to make copies, so the fact sheets and handout can be shared electronically and read by students on a smartphone or tablet. You could also write the clues beforehand on a white/

blackboard and have students copy the fact-sheet clues into their notebooks. Students could also copy the handout directly into their notebooks.

- 2.** In order to save paper, you can partner two students together to share one paper; these students could take turns reading clues. You could also write the clues on poster paper and adhere them on the wall. Students would have to go to the poster to get a clue, return to the group, and share the clue with group members (similar to a running-dictation activity).
- 3.** Fact-sheet items can be shortened, lengthened, simplified, or made more complicated, and the vocabulary can be

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customized and modified for different proficiency levels.

4. For teachers whose time is limited and those who have never created puzzles before, creating logic-grid puzzles is a great activity to do as a group, either as part of a workshop or in regularly scheduled meetings. Teachers might collaborate to create puzzles and clues, and then everyone would have them to use in their lessons.
5. You might want to use the activity to assess students' speaking and listening skills by doing any or all of the following:
  - Circulate around the room and informally assess students' progress.
  - Keep track of how successfully students work in groups and of individual students' reading comprehension.
  - Take note of which fact-sheet items students have trouble understanding and use them to teach logic skills or reading strategies.
  - Help struggling individuals by modeling reading the items in a slow, comprehensible manner and modeling asking for clarification (e.g., "Sorry, I didn't understand that. Once more please, more slowly.").

### EXTENSION

Having students make their own puzzles to share with classmates is a natural next step and provides extra chances for meaningful

language practice and creativity. Students can create these in pairs or groups and exchange with other pairs or groups to solve. You can stockpile these student-created puzzles for future use.

### REFLECTIONS

The most evident and satisfying outcome I observe when I use these puzzles is that they energize the class and get students interested in reading, speaking, and listening. They have a purpose and are motivated to communicate effectively and to find information quickly. Groups who haven't finished before the class bell often stay after class a few minutes to finish. Students who previously complained that speaking was too difficult are now eagerly listening or scouring the fact sheets for extra clues. To put it another way, logic-grid puzzles transform reluctant students into self-assured, active ones.

An accompanying YouTube.com video to this article can be found at this link: <https://youtu.be/Cm7ONATnOUM>

### REFERENCE

Benucci, H. 2015. Listening and logic. *English Teaching Forum* 53 (1): 46–52.

**Gavin Young** has been teaching ESL classes in Japan for over 20 years. He spent time as a Peace Corps volunteer in Guinea, West Africa, and as an English Language Fellow in Morocco.