Day 3: The Council of Five

Your Mission

The Number Kingdom's account book is restored, but the book keepers have gathered for a Council of Five to solve a final problem. Each keeper presents a logic puzzle that only a true logician can solve. Answer all five, and you'll unlock the Council Chamber and earn the title of Royal Logician in the Number Kingdom.

Warm-Up: A New Tool for Today

Last time you used to work backwards, testing answer choices, and elimination. Today's new tool is called **deduction**. Deduction means putting clues together to figure out something that must be true. You read each clue, connect the clues, cross out answers that don't fit, and see what remains.

Quick Check: If someone says, "All cats have whiskers. Fluffy is a cat." What must be true about Fluffy?



Hi! I'm Fluffy~

Write your answer: _____

Challenge 1: The Four Pet Owners

The first keeper, Grandma, brings a conflict about four of her grandsons and their pets.

Each boy, Mike, Nate, Oliver, and Paul, has exactly one of the following animals: a cat, a dog, a goldfish, and a canary. Nate has a pet with fur. Oliver has a pet with four legs. Paul has a bird, and Mike and Nate don't like cats. Which of the following sentences is not true?

(A) Oliver has a dog. (B) Paul has a canary. (C) Mike has a goldfish.
(D) Oliver has a cat. (E) Nate has a dog.

Hint: Start with the clearest clues. Paul has a bird → Paul has the canary. Nate has fur and doesn't like cats → Nate must have the dog. Oliver has four legs → which pet has four legs and is not chosen? Check each answer choice against what you know.

Challenge 2: The Two-Story House

The second keeper, Jerry, has five ex-girlfriends who are having a housing issue.

Irena, Ann, Kate, Olga, and Elena live in the same two-story house. Two of the girls live on the first floor; three of them live on the second floor. Olga lives on a different floor than Kate and Elena. Ann lives on a different floor than Irena and Kate. Who lives on the first floor?

(A) Kate and Elena (B) Irena and Elena (C) Irena and Olga
(D) Irena and Kate (E) Ann and Olga

Hint: Try placing the girls floor by floor. If Olga is on a different floor than Kate and Elena, then Kate and Elena must be on the same floor. If Ann is on a different floor than Irena and Kate, then Irena and Kate must be on the same floor. So Kate, Elena, and Irena are all on the same floor. Which floor must that be if only three can be on the second floor?

Challenge 3: The Cashier Line

Another keeper, the Scribe, has five stupid friends who are confused about standing in a line in front of the cashier.

Adam, Bob, Celina, Daniel, and Eve formed a line to the cashier. Adam is standing farther from the cashier than Celina. Bob is standing closer to the cashier than Adam and right behind Daniel. Daniel is standing closer than Celina, but he isn't first in line. In what place, counting from the cashier, is Eve standing?

(A) 1^{st} (B) 2^{nd} (C) 3^{rd} (D) 4^{th} (E) 5^{th}

Hint: Draw a line with the cashier on the left. Closer to the cashier means being farther left. Bob is right behind Daniel → Daniel is immediately in front of Bob. Adam is farther than Celina → Celina is in front of Adam. Daniel is closer than Celina → Daniel is in front of Celina. Put these friends in order: Daniel, Bob, Celina, Adam. Who is left for 1st place?

Challenge 4: The Four Travelers

The fourth keeper, the Number Wizard, has a city-origin puzzle. He owns a huge, fancy concert in Chicago, and four travelers are visiting his concert.

Paul, Darius, Micah, and Jeff met at a concert in Chicago, but they came from different cities: Pittsburgh, Dallas, New York, and Washington. We know that:

- Paul and the boy from Washington met in Chicago early in the morning on the day of the concert. They had never been to Pittsburgh or to New York.
- Micah is not from Washington, and he came to Chicago later than the boy from Pittsburgh.
- Jeff liked the concert more than the boy from Pittsburgh did.

What city is Jeff from?

(A) Pittsburgh (B) New York (C) Dallas (D) Washington (E) Chicago

Hint: Eliminate step by step. Paul is not from Washington because he met the boy from Washington. Paul is not from Pittsburgh or New York, so he must be from Dallas. Micah is not from Washington or Dallas. He is also not from Pittsburgh because he arrived later than the Pittsburgh boy. So Micah is from New York. Jeff is not from Pittsburgh. Which city is left?

Challenge 5: The Circle of Seven

The fifth keeper, the Time Traveler, brings a puzzle about children standing in a circle.

Seven children are standing in a circle. No two boys are standing next to each other. No three girls are standing next to each other. Which of the statements below about the number of girls standing in the circle is true?

(A) 3 is the only possible number.
(B) 3 and 4 are the only possible numbers.
(C) 4 is the only possible number.
(D) 4 and 5 are the only possible numbers.
(E) 5 is the only possible number.

Hint: Test each possibility. If there are 5 girls, can you avoid having three girls in a row? If there are 3 girls, can you avoid having two boys next to each other? Try 4 girls and 3 boys. Can you arrange them so both rules are followed? Draw a circle and test it.

The Master Code

You've solved all five challenges! Fill in the secret code to unlock the Council Chamber.

Word Bank: *CLUES, DEDUCTION, ELIMINATE, ORDER, TEST*

1. When solving a logic puzzle, read each clue and _____ possibilities that don't fit.
2. _____ means using clues to figure out what must be true.
3. For line-order puzzles, draw a line and place people in _____ from the clue.
4. If you're not sure, _____ each answer choice to see which one works.
5. Pay close attention to _____ like "different floor," "right behind," or "not from Washington."

You've unlocked the Council Chamber and earned the title of Royal Logician. The five keepers applaud your reasoning skills. The Number Kingdom is now fully restored with its account book, council, and all!

