

Cognitive Abilities Test™  
Practice Activities  
Teacher Guide

Form 7

Nonverbal  
Tests

Level 8

*CogAT*®

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# Test 7: Figure Matrices, Level 8

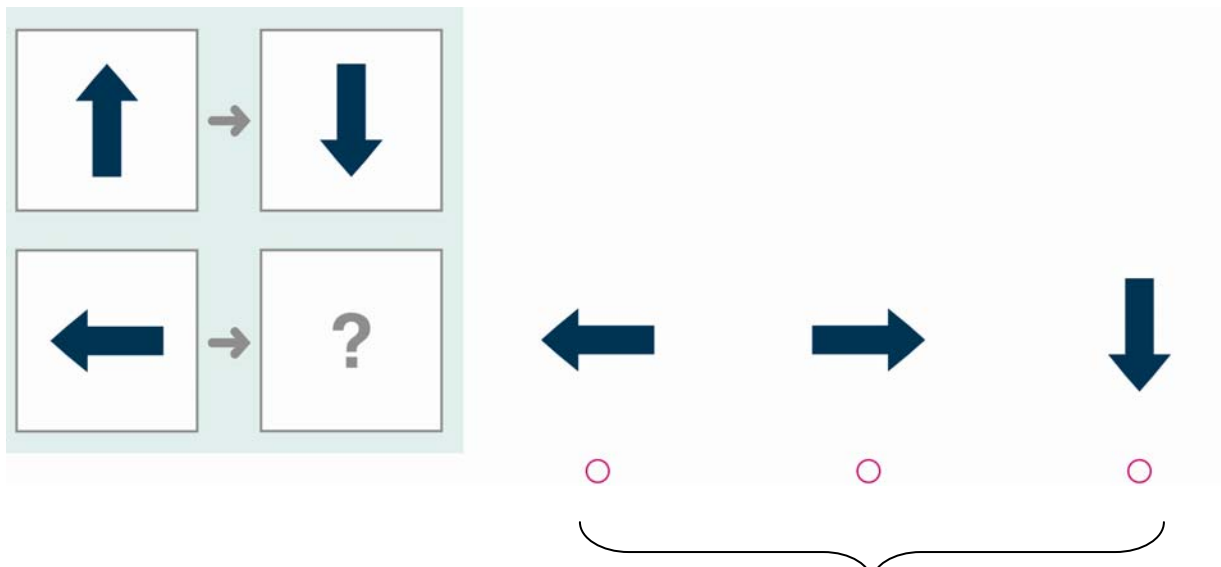
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## Part 1: Overview of Figure Matrices

An analogy draws parallels between objects or ideas, for example, “up is to down as left is to right.” Analogies can be about simple things “A tadpole is like a fish” or complex concepts “Friendships are like glass. Once broken, they are hard to fix.” Successful learners habitually reason by analogy. Good analogies allow them to use what they already know to understand or remember new ideas. Reasoning by analogy requires attending carefully to how two things are similar and then applying these relationships to something new.

The Figure Matrices test is like the Picture Analogies and Number Analogies tests except the questions use figures or shapes rather than pictures of objects or activities.

In this test, students are asked to solve problems that look like this:



The figure matrix problem consists of a 2x2 grid of boxes. The top-left box contains an upward-pointing arrow. The top-right box contains a downward-pointing arrow. The bottom-left box contains a leftward-pointing arrow. The bottom-right box contains a question mark. A small right-pointing arrow is positioned between the top-left and top-right boxes, and another small right-pointing arrow is positioned between the bottom-left and bottom-right boxes. To the right of the matrix are three answer choices, each consisting of a dark blue arrow pointing left, right, or down, with a small pink circle below it. A large curly bracket underneath all three answer choices points to the following question.

*Which answer picture shows what would happen if the new arrow changed in the same way as the first arrow?*

When practicing the Figure Matrices questions, encourage students to use these strategies.

- Carefully examine the first two figures. Then think of a rule (and say it silently) that describes the relationship between the figures. For example, flip the first figure to get the second one.
- Apply the rule to the third figure to determine the missing figure.
- Test the rule on each answer picture, eliminating answer pictures that do not fit the rule.
- Look for a more precise rule if more than one answer choice fits the rule.

Students at this level tend to make the following common mistakes.

- Students may choose an answer picture that looks like the figure in the bottom row. For example, in the sample question above, students might select the first answer choice.
- Students might infer the wrong relationship between the first two figures. Putting the rule into words will help them be more precise.
- Students may overlook or forget a critical feature of the figures in the top row. Using language to describe the rules will help them remember them.
- Students might select an answer choice before checking all the answer pictures.

## Part 2: Figure Matrices Practice Test Script

The following script covers many issues that will help students do their best on the test. Read aloud the text printed in *blue italics*: these are directions to the students. Directions for you are in parentheses and should NOT be read aloud. Feel free to modify the script to ensure that students understand what they are supposed to do and how to do it.

It may be helpful to make copies of the practice questions in order to display them one at a time on an overhead projector. If this is not possible, hold up a copy of the student practice booklet and point to different parts of each practice question as you discuss them with the class.

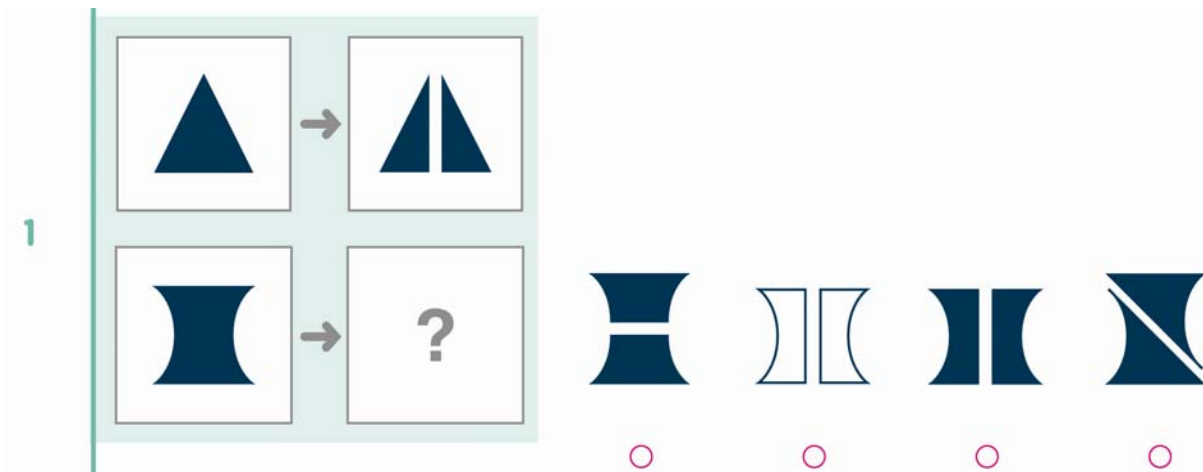
(Make sure each student has a practice booklet. Then **SAY**:)

*Open your practice booklet to page 1. You should be on the page with the **birds** across the top.*

(Check that all students have the correct page.)

**P1**

*Let's do the first practice question.*



(Point to the big box that has pictures inside of it as you **SAY**:)

*The big box has three pictures. We must decide which answer picture goes in the box with the question mark.*

(Point to the top row of the big box as you **SAY**:)

*Look at the shapes in the top row. The first picture is a triangle, and the second picture is two triangles. The arrow (*Point.*) means that the first picture goes with the second picture in some way. How do the first and second pictures go together?*

(Encourage responses.)

*The second picture looks like the triangle in the first picture, but it is cut in half.*

(Point to the bottom row of the big box as you **SAY**.)

*The two pictures in the bottom row must go together in the same way.*

*What would we get if we cut the first shape in the bottom row in half?*

(Encourage responses. Then point to the answer choices as you **SAY**.)

*Let's look at the answer pictures.*

- *The first answer picture shows a shape cut in half, but the cut goes the wrong way.*
- *The second answer picture shows a shape cut in half, but the shapes aren't colored in like the first one.*
- *In the third picture, the shape is cut in half from top to bottom and the two new shapes are darkened.*
- *The last picture is cut in half diagonally across the shape.*

*Which picture follows the same rule as the triangles in the top row of the big box?*

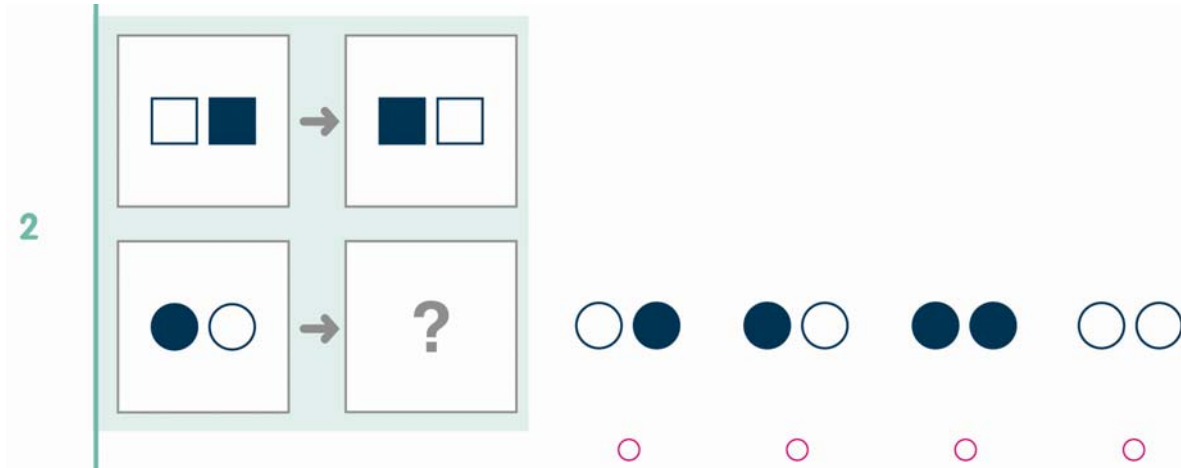
(Encourage responses. Then point to the third choice as you **SAY**.)

*The third shape is the best answer because it's cut in half from top to bottom, just like the triangles. It is also darkened like the triangles. Fill in the circle under the third answer picture to show that it is the correct answer.*

(Check to make sure that all students have filled in the third circle.)

## **P2**

*Let's do the second practice question.*



(Point to the big box as you **SAY**.)

*The question has four boxes. You must decide which answer picture goes in the box with the question mark.*

(Point to the top row as you **SAY**.)

*Look at the top row of the big box. The first picture shows a white square and a dark square. The second picture shows a dark square and a white square.*

*How do these pictures go together?*

(Encourage responses.)

*The squares in the second box are the same but they are in the opposite order – white, dark then dark, white.*

(Point to the bottom row of the big box as you **SAY**.)

*The shapes in the bottom row of the big box must go together in the same way.*

*In the first picture we see a dark circle and a white circle. What shapes should go in the box with the question mark?*

(Encourage students to say the rule. Then point to the answer pictures as you **SAY**.)

*Which answer picture shows that?*

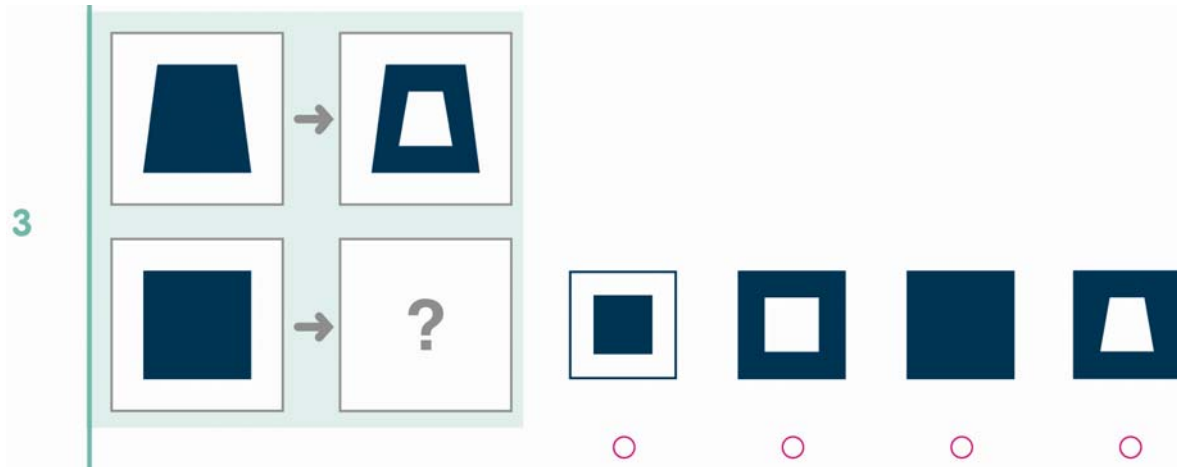
(Encourage responses. Then point to the first answer picture as you **SAY**.)

*The two circles are in the opposite order than they are in the first box. This is just what happened to the squares in the top row. Fill in the circle under the first answer picture to show it is the correct answer.*

(Check to make sure that all students have filled in the first circle.)

### P3

*Let's do the third practice question.*



(Point to the top row as you **SAY**.)

*Look at the two shapes in the top row of the question. How do these shapes go together?*

(Encourage responses.)

*The second shape looks like the first one but with the middle cut out.*

(Point to the bottom row of the question as you **SAY**.)

*The two shapes in the bottom row of the question must go together in the same way.*

*Look at the dark square in the bottom row. How would the square look if we cut out the middle?*

(Encourage responses. Then point to the answer choices as you **SAY**.)

*Which answer picture shows that?*

(Encourage responses. Then point to the second and fourth answer choices as you **SAY**.)

*Both of these answer pictures have the middle cut out, so which do we choose? We need to find another rule so we can decide which answer picture is correct.*

(Point back to the top row as you **SAY**.)

*Do you notice anything else about the part that was cut out of this shape?*

(Encourage responses.)

*The part that was cut out is the same shape as the part that is still there. So which answer picture should we choose?*

(Encourage responses. Then point to the second answer choice as you **SAY**.)

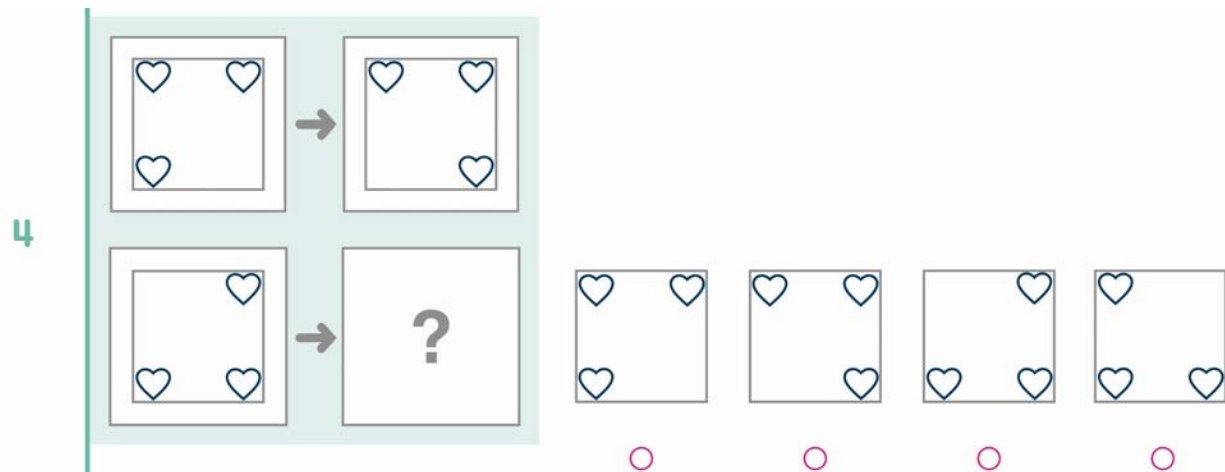
*We should choose the second answer picture. It's a square with a cut-out that is also a square. Fill in the circle under the second answer picture to show that it is the best answer.*

(Check to make sure that all students have filled in the second circle.)

*Turn to the next page. You should be on the page with the **flowers** across the top.*

## P4

*Let's do the fourth practice question.*



(Point to the top row of the question as you **SAY**.)

*Look at the pictures in the top row of the big box. Both pictures show squares with hearts in three corners. How do these pictures go together?*

(Encourage responses. Note that there are several different rules that would produce this change. For example, the single heart moves to the empty space. Or the single heart switches corners. Or the entire picture was flipped about the vertical axis.)

*The second picture looks like the first one but it has been flipped over.*

(Demonstrate with your hand. If necessary, draw 3 hearts on a transparent sheet and flip it. Then point to the bottom row as you **SAY**.)

*The two pictures in the bottom row must go together in the same way. What would happen if we*



*flipped the picture in the first box?*

(Encourage responses. Then point to the answer choices as you **SAY**.)

*Which answer picture shows that?*

(Encourage responses.)

*The last answer picture shows the three hearts flipped over. Fill in the circle under the last answer picture to show that it is the correct answer.*

(Check to make sure that all students have filled in the last circle.)

## P5

*Let's do the fifth practice question.*

5

(Point to the top row as you **SAY**.)

*Look at the two shapes in the top row of the question. How do they go together?*

(Encourage responses.)

*The second shape looks like the first one but it has been flipped over and then a line has been drawn through it.*

(Point to the bottom row of the question as you **SAY**.)

*The two shapes in the bottom row of the question must go together in the same way.*

*The first shape looks like an "S." Which answer picture shows what happens when we flip the "S" and draw a line through it?*

(Encourage responses. Then point to the second choice as you **SAY**!)

*The second answer picture shows what happens. Fill in the circle under the second picture to show that it is the correct answer.*

(Check to make sure that all students have filled in the second circle.)

## P6

*Let's do the last practice question.*

6

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(Point to the top row as you **SAY**!)

*Look at the boxes in the two pictures in the top row of the question. Each box is divided into four boxes with shapes inside. How are the pictures the same? How do they differ?*

(Allow students time to study the pictures. Then encourage responses. Try to get students to focus on what changes and what stays the same between the two pictures.)

*The second picture looks like the first except the square and triangle changed places inside the box. The diamond and the circle stayed in the same place.*

(Point to the bottom row of the question as you **SAY**!)

*The two pictures in the bottom row of the question must go together in the same way. So what shapes must stay the same?*

(Encourage answers. Point to the two “X’s” as you **SAY**!)

*The two “X’s” must stay in the same place in the answer. Which answer pictures show this?*

(Encourage responses.)

*Only the first and third answer pictures have the “X’s” in the same place. This tells us that the other answer pictures cannot be correct. We do not need to look at them again.*

*What must happen to the other two shapes in the picture? Do you remember the rule?*

(Encourage responses.)

*Those shapes must switch places. Which answer picture shows this?*

(Encourage responses. Then point to the third answer picture as you **SAY**.)

*The third picture shows what happens. Fill in the circle under the third picture to show that it is the correct answer.*

(Check to make sure that all students have filled in the third circle.)

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## Test 8: Paper Folding, Levels 7–8

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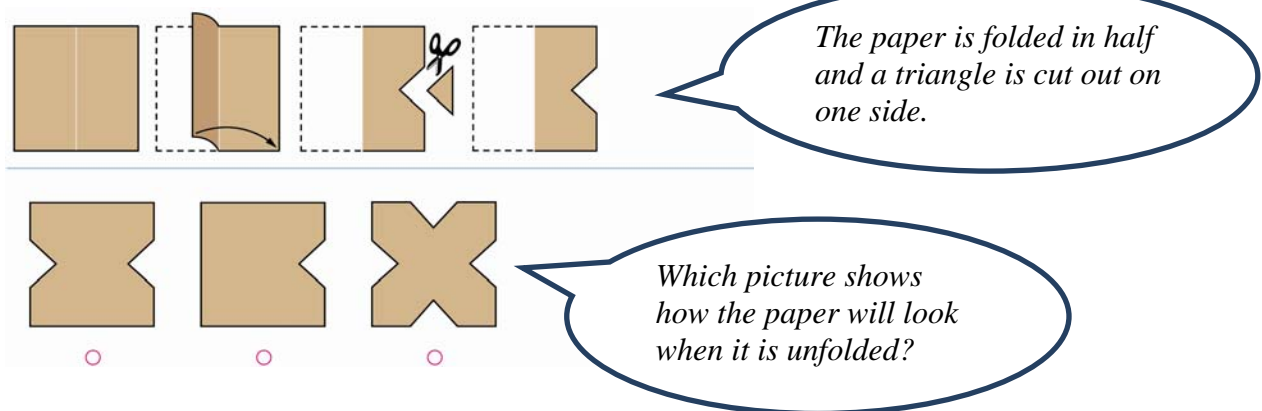
### Part 1: Overview of Paper Folding

The Paper Folding test is modeled after a similar task that Binet used with young children. The test requires that the student imagine what happens to a sheet of paper after it is folded and a piece is cut out of it. On the simplest questions, the paper is already folded in half, nothing is cut out of it, and the student must imagine how it will look when unfolded. On other questions, the first pictures show how the paper is folded. The student must understand how these pictures describe the folding of an actual piece of paper. Then a circle (or other shape) is cut through all the layers of paper at that point. The student must then reverse the process and imagine how the paper will appear as it is unfolded while keeping track of the missing holes (or cut-outs). Logical thinking can assist in solving most questions. For example, if the paper is folded in half and a hole is cut through both layers, then the unfolded paper must have two holes.

These practice activities are designed to teach students (a) how to imagine the correspondence between the pictures in the test booklet and the actual folding, cutting, and unfolding of a piece of paper and (b) how to use logical thinking to help them solve the problems. This practice can also help them move from concrete, perceptual strategies to more logical strategies for answering the questions.

Accurate testing requires that students understand the diagrams in the questions. Therefore, the practice session begins with demonstrations that use real paper, and these instructions include real paper cut-outs at the end that can be used to help students understand the diagrams. There are six paper cut-outs, one for each practice question. To use these, cut them out and fold them ahead of time, then use them to demonstrate the unfolding processes as you go over each question. Whenever students are confused by a question, it is helpful to ask them to solve the question using an actual piece of paper themselves.

The more difficult questions in the test look like this:



When practicing the Paper Folding questions, encourage students to use these strategies.

- Imagine how the cut-out will be reflected on the other side of the paper each time it is unfolded.
- Use logical reasoning to say how many holes or cut-outs should be on the unfolded paper. For example, if the paper is folded once and a hole is cut in it, then there will be a hole in each layer of the paper. So there will be two holes in the unfolded paper.
- Examine all of the answer choices before picking one.
- When confused, model the problem using a square sheet of paper.

Students at this level tend to make the following common mistakes.

- Students might select the first answer that looks right without considering other answers.
- Students may ignore the angle of the fold.
- Students might forget to reason about the approximate location of the holes when unfolding the paper.
- Students may ignore the number of holes that must appear on the answer. For example, in the sample question above, the student might forget that there were two layers of paper that were cut and select the second answer choice.

## Part 2: Paper Folding Practice Test Script

The following script covers many issues that will help students do their best on the test. Read aloud the text printed in *blue italics*: these are directions to the students. Directions for you are in parentheses and should NOT be read aloud. Feel free to modify the script to ensure that students understand what they are supposed to do and how to do it.

It may be helpful to make copies of the practice questions in order to display them one at a time on an overhead projector. If this is not possible, hold up a copy of the student practice booklet and point to different parts of each practice question as you discuss them with the class. Also, be sure to have a two-inch-by-four-inch place marker for each student (either a note card or a piece of cardboard). It will also be helpful if each student has a few SQUARE sheets of paper and scissors.

(Cut out the square labeled “P1” at the end of this document. Crease the paper down the middle so it folds easily. Hold up the piece of paper as you **SAY**.)

*Watch me fold this square piece of paper in half.*

(SLOWLY fold the paper in half.)

*How will the paper look if I unfold it?*

(Encourage responses. Then unfold the paper.)

*Now what is it? (Pause.) It's a square again.*

(Make sure each student has a practice booklet and place marker. Then **SAY**.)

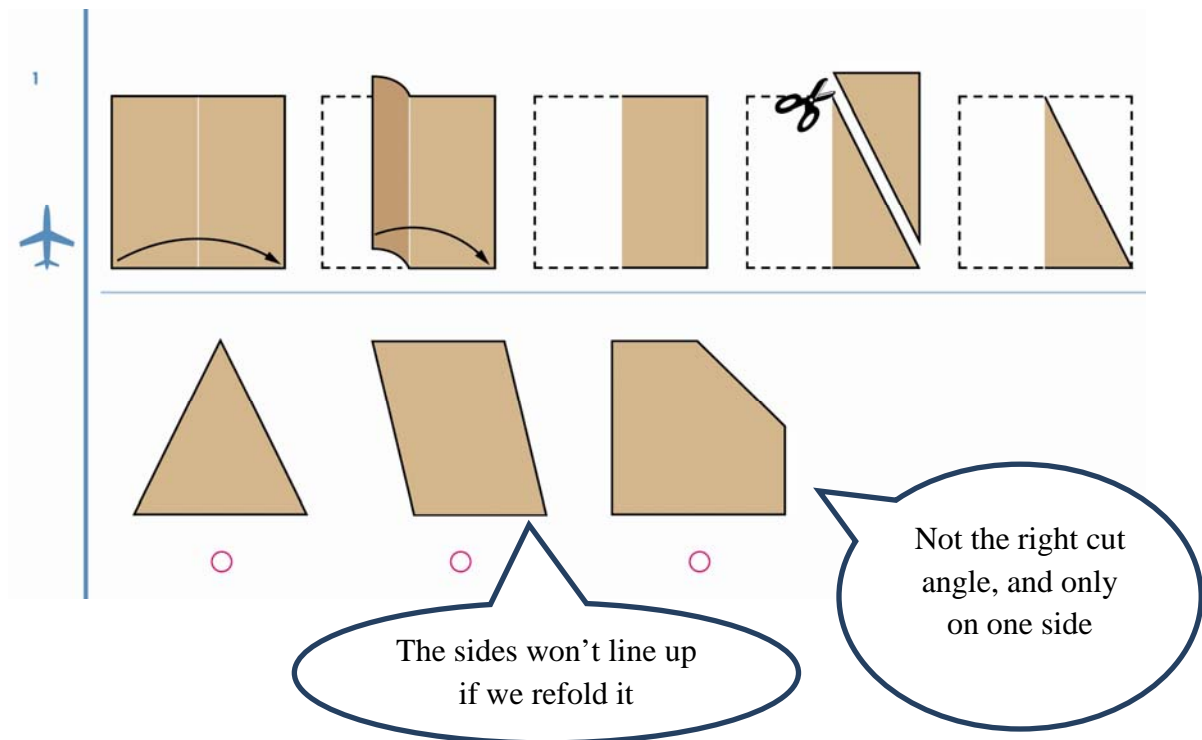
*Open your practice booklet to page 3. You should be on the page with the **elephants** across the top.*

(Check that all students have the correct page.)

*Each of these questions shows a shape or piece of paper being folded. Then, a piece is cut out of the folded paper. You must imagine how the paper will look when it is unfolded.*

**P1**

*Let's do the first practice question.* (NOTE: The picture under each question number and to the left of the top row is item indicator art, and it disappears at Level 8. Read the following sentence **only at Level 7.**) *Put your marker under the **airplane**.*



(Point to the first picture in the top row as you **SAY**!)

*Look at the top row. The first three pictures show a square piece of paper that is folded in half.*

(Point to the scissors cutting the paper in the fourth picture and **SAY**!)

*Then, we cut a piece out of the folded paper.*

(Point to the fifth picture as you **SAY**!)

*The last picture shows what the folded paper looks like after it has been cut.*

*What will the paper look like when we unfold it? Try to imagine unfolding it.*

(Encourage responses and then demonstrate by holding up the square piece of paper labeled “P1” from the end of this document. Fold it in half and cut it into a triangle as shown above. Unfold the paper and **SAY**!)

*It made a triangle. When we cut the paper, we cut through both layers of the paper.*

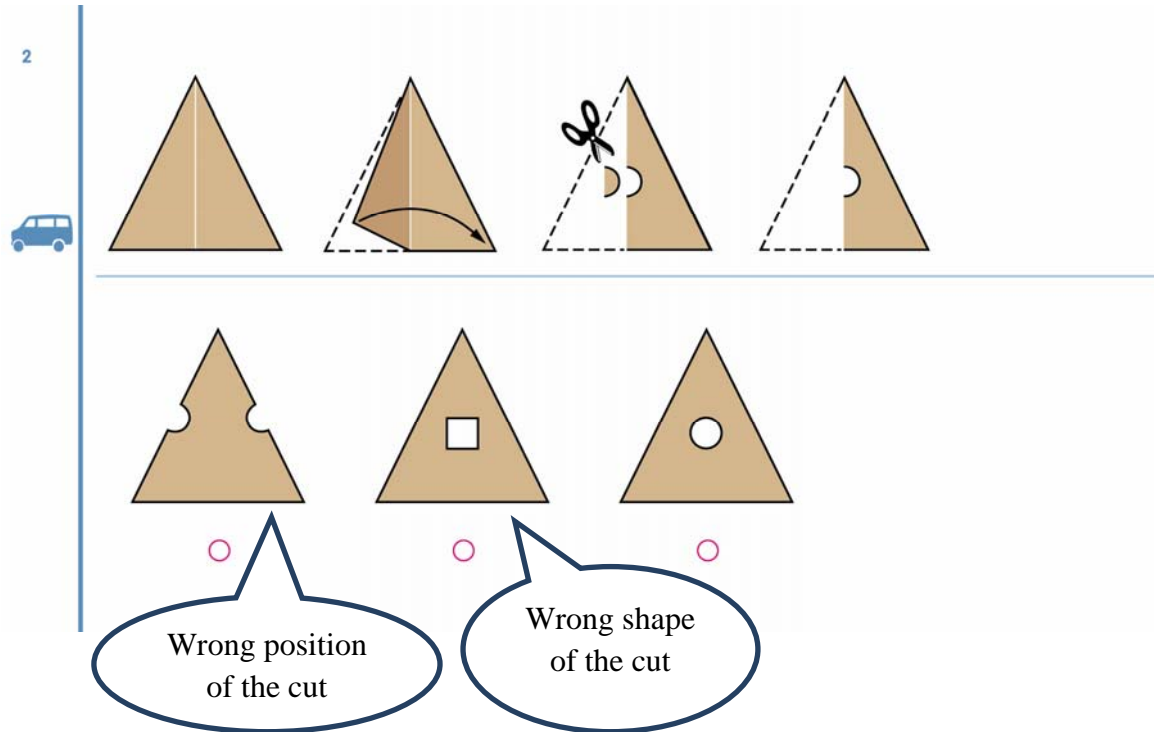
(If students are confused, repeat the demonstration or ask them to repeat the process with their own pieces of paper.)

*Fill in the circle under the first answer picture. It shows how the paper looks when it is unfolded.*

(Check to make sure that all students have filled in the first circle. If students suggest other answers, use the feedback in the figure above to point out what they are missing.)

## P2

Let's do the second practice question. (Read the following sentence **only at Level 7.**) Put your marker under the **van**.



(Point to the pictures in the top row as you **SAY**.)

*Look at the pictures in the top row. What will the paper look like when we unfold it?*

(Allow students time to study the pictures then encourage responses.)

*When we cut the paper, we cut through both sides of the paper where it was folded. The cut will make a circle, so the paper will have a round hole in the center.*

(Point to the answer choices as you **SAY**.)

*Which picture shows how the paper will look when it is unfolded?*

(Encourage responses. Demonstrate with the real paper example labeled “P2” from the end of this document.)

*Fill in the circle under the last answer picture to show that the paper triangle with a round hole in the center is the correct answer.*

(Check to make sure that all students have filled in the third circle. If students suggest other answers, use the feedback in the figure above to point out what they are missing.)



Turn to the next page. You should be on the page with the *frogs* across the top.

**P3**

Look at the third practice question. Try to solve this practice question on your own. (Read the following sentence **only at Level 7.**) Put your marker under the *chair*.

(Make sure students have enough time to solve the problem. Then **SAY**!)

*What will the paper look like when we unfold it?*

(Encourage responses.)

*How did you solve this question?*

(Encourage responses. Then demonstrate with the real paper example. If there are students who don't understand how to solve the question, go through the process as follows.)

*After one fold, the hole is cut through two layers of paper, so the answer should have how many holes?*

(Encourage responses.)

*It must have two holes: One hole where we made the cut, and one on the other side of the fold.*

(Point to the answer choices as you **SAY**!)

*If the answer must have two holes, then can the first answer picture be the correct answer?*

(Encourage responses.)

*No, the first answer picture only has one hole. Why can't the third answer picture be correct?*

(Encourage responses.)

*The holes in the third answer picture are in the wrong places. So the second picture is the correct answer. Fill in the circle under the second picture to show that it is the correct answer.*

(Check to make sure that all students have filled in the second circle. If students suggest other answers, use the comments in the figure above to point out what they are missing.)

## P4

*Look at the fourth practice question. Try to solve this practice question on your own. (Read the following sentence **only at Level 7.**) Put your marker under the **plant**.*

4

Wrong # of hearts

Heart must flip

(Make sure students have enough time to solve the problem. Then **SAY**!)

*What will the paper look like when we unfold it?*

(Encourage responses.)

*How did you solve this question?*

(Encourage responses. This question is difficult. If students are confused by the explanation,

illustrate using the real paper example. If there are students who don't understand how to solve the question, go through the process as follows.)

*After one fold, the heart is cut through two layers of paper, so the answer should have two holes. One hole is where we made the cut and the other is across the fold. Since the cut-out is a heart, it will flip over when we unfold the paper.*

(Demonstrate how this happens. Encourage students to repeat the process themselves.)

*So the first picture is the correct answer. Fill in the circle under the first picture to show that it is the correct answer.*

(Check to make sure that all students have filled in the first circle. If students suggest other answers, use the comments in the figure above to point out what they are missing.)

*Turn to the next page. You should be on the page with the **horses** across the top.*

## P5

*Look at the fifth practice question. Try to solve this practice question on your own. (Read the following sentence **only at Level 7.**) Put your marker under the **deer**.*

5

The diagram illustrates the process of cutting a heart shape from a folded piece of paper. It shows three stages: 1. A square piece of paper with a vertical fold line and a heart shape cut out from the left side. 2. The paper is folded in half, and the heart shape is cut out. 3. The paper is unfolded, showing two heart shapes. Below this are three possible unfolded results, each with a pink circle underneath it. The first result shows two heart shapes, but they are not mirrored across the fold. The second result shows four heart shapes, which is incorrect. The third result shows four heart shapes, but they are not mirrored across the fold. Callouts explain the errors: 'Wrong # of triangles' points to the first result, and 'Triangles must flip' points to the third result.

Wrong # of triangles

Triangles must flip

(Make sure students have enough time to solve the problem. Then **SAY:**)

*What will the paper look like when we unfold it?*

(Encourage responses.)

*How did you answer this question?*

(Encourage responses. Then demonstrate with the real paper example. If there are students who don't understand how to solve the question, go through the process as follows.)

*After two folds, the hole is cut through four layers of paper, so the answer should have four holes. The holes will be lined up because the folds are all parallel. Since the cut-out is a triangle, it will flip (reflect) after each fold.*

*So the last picture shows the correct answer. Fill in the circle under the last picture to show that it is the correct answer.*

(Check to make sure that all students have filled in the third circle. If students suggest other answers, use the feedback in the figure above to point out what they are missing.)

## P6

*Look at the last practice question. Try to solve this practice question on your own. (Read the following sentence **only at Level 7.**) Put your marker under the **table**.*

6

Wrong flip

Wrong # of holes

(Make sure students have enough time to solve the problem. Then **SAY:**)

*What will the paper look like when we unfold it?*

(Encourage responses.)

*How did you answer this question?*

(Encourage responses. Then demonstrate with the real paper example. If there are students who don't understand how to solve the question, go through the process as follows.)

*After one fold, two different holes are cut through two layers of paper, so the answer should have four holes: two big and two small.*

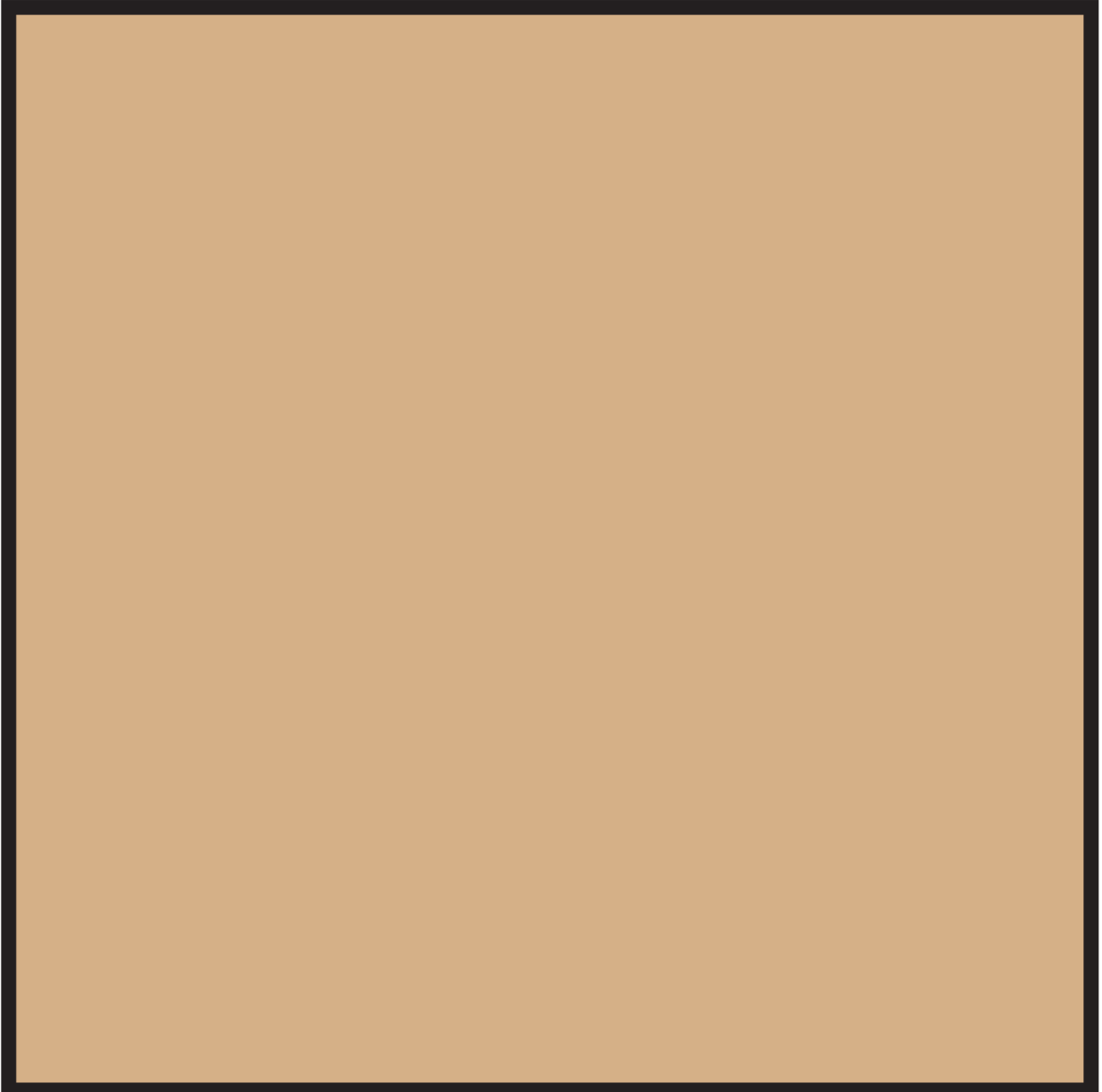
*The last answer picture has the wrong number of holes, so it is wrong. It has to be one of the first two answer pictures.*

*We can't just copy the holes; the holes will flip over when we unfold the paper. So the first picture isn't correct.*

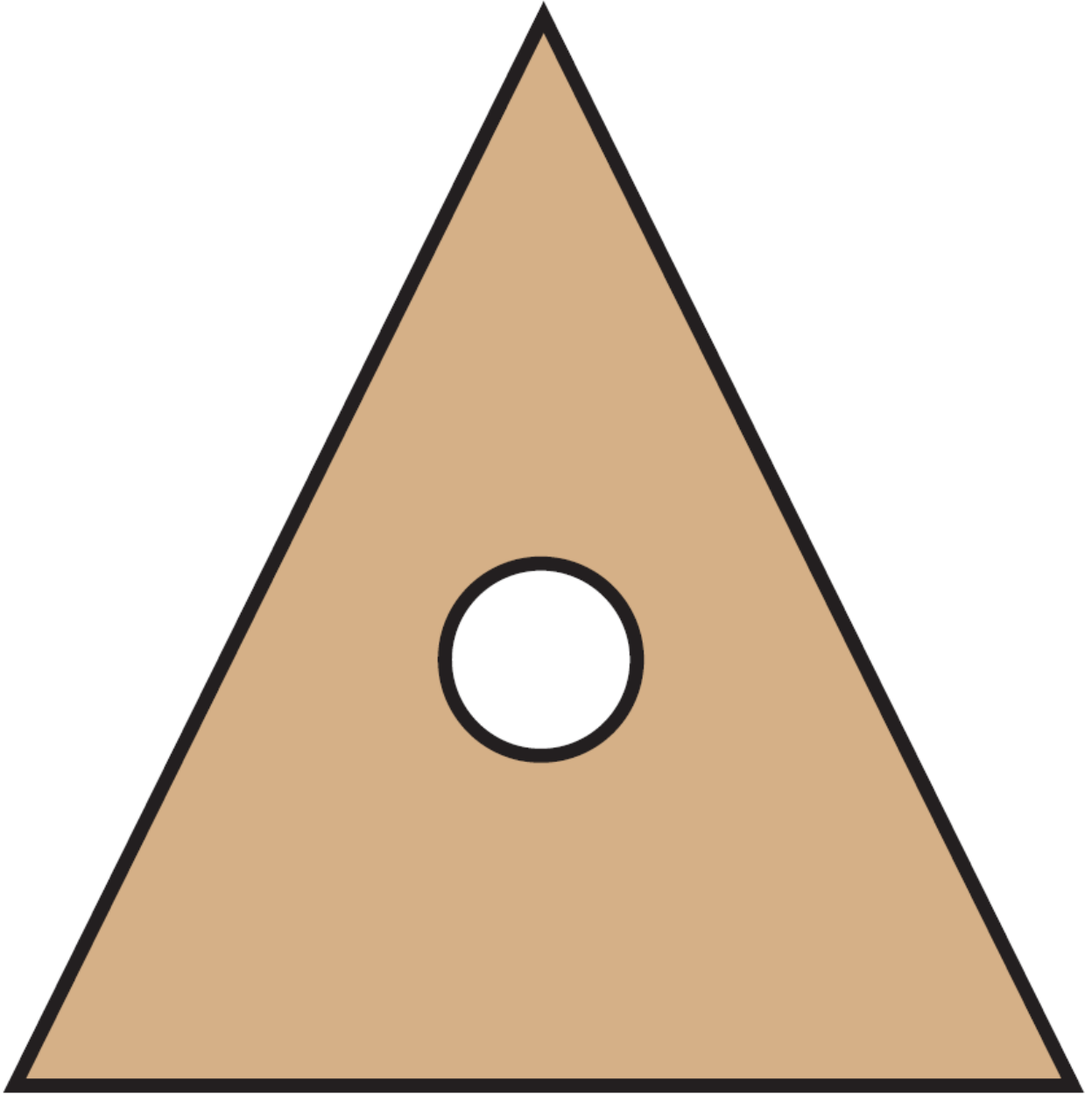
*The second answer picture shows what the paper will look like. Fill in the circle under the second picture to show that it is the correct answer.*

(Check to make sure that all students have filled in the second circle. If students suggest other answers, use the feedback in the figure above to point out what they are missing.)

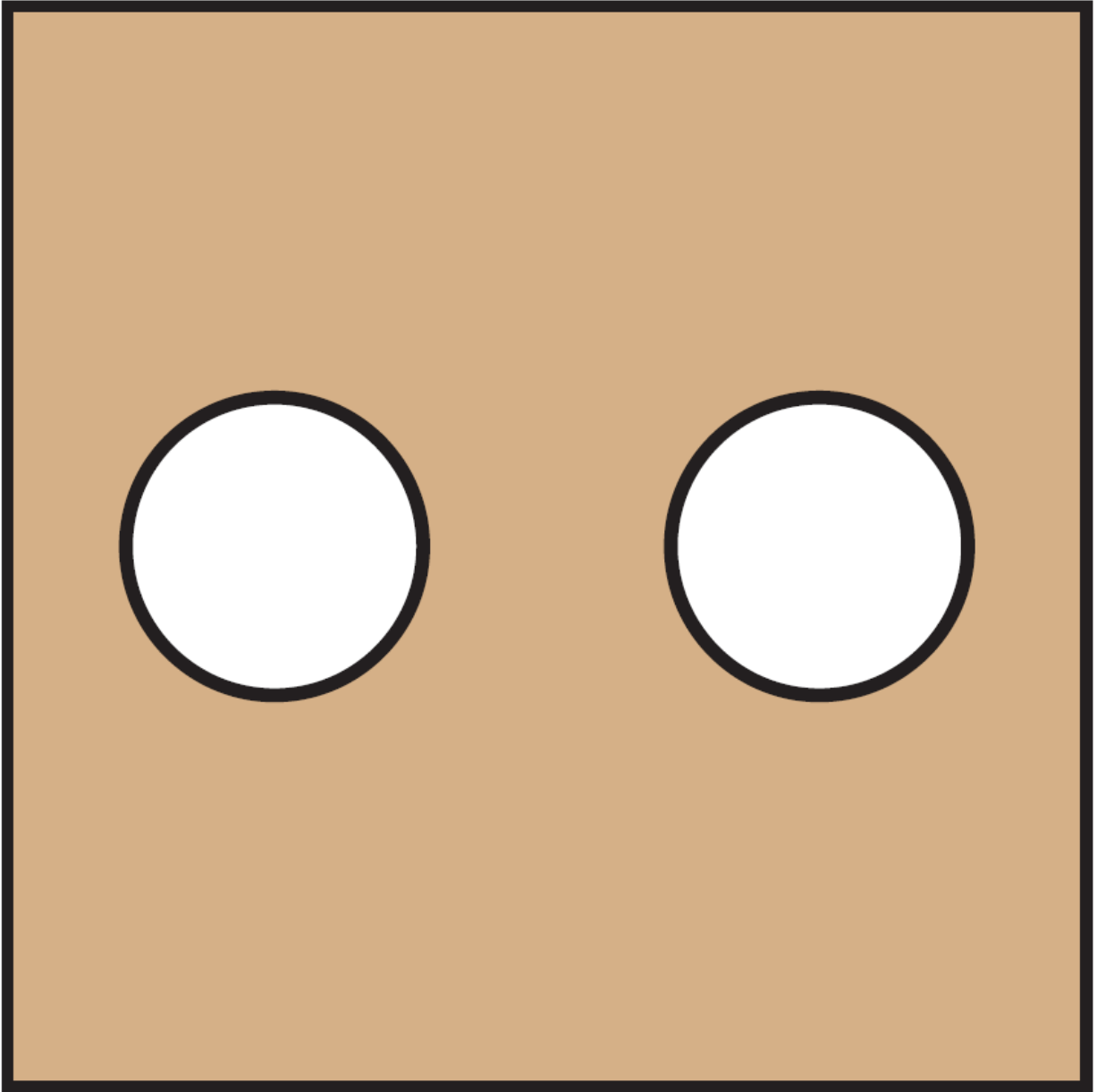
P1



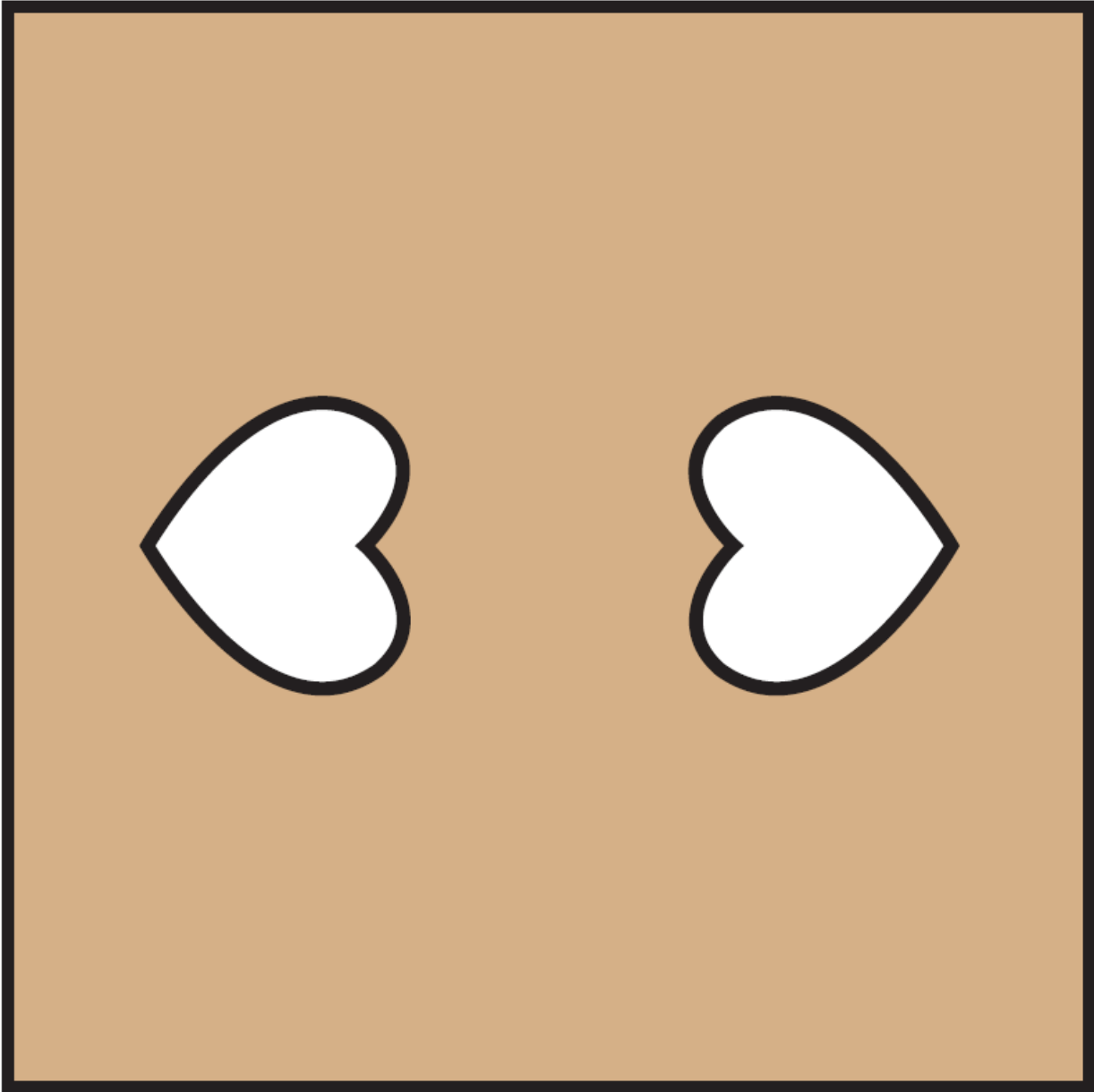
P2



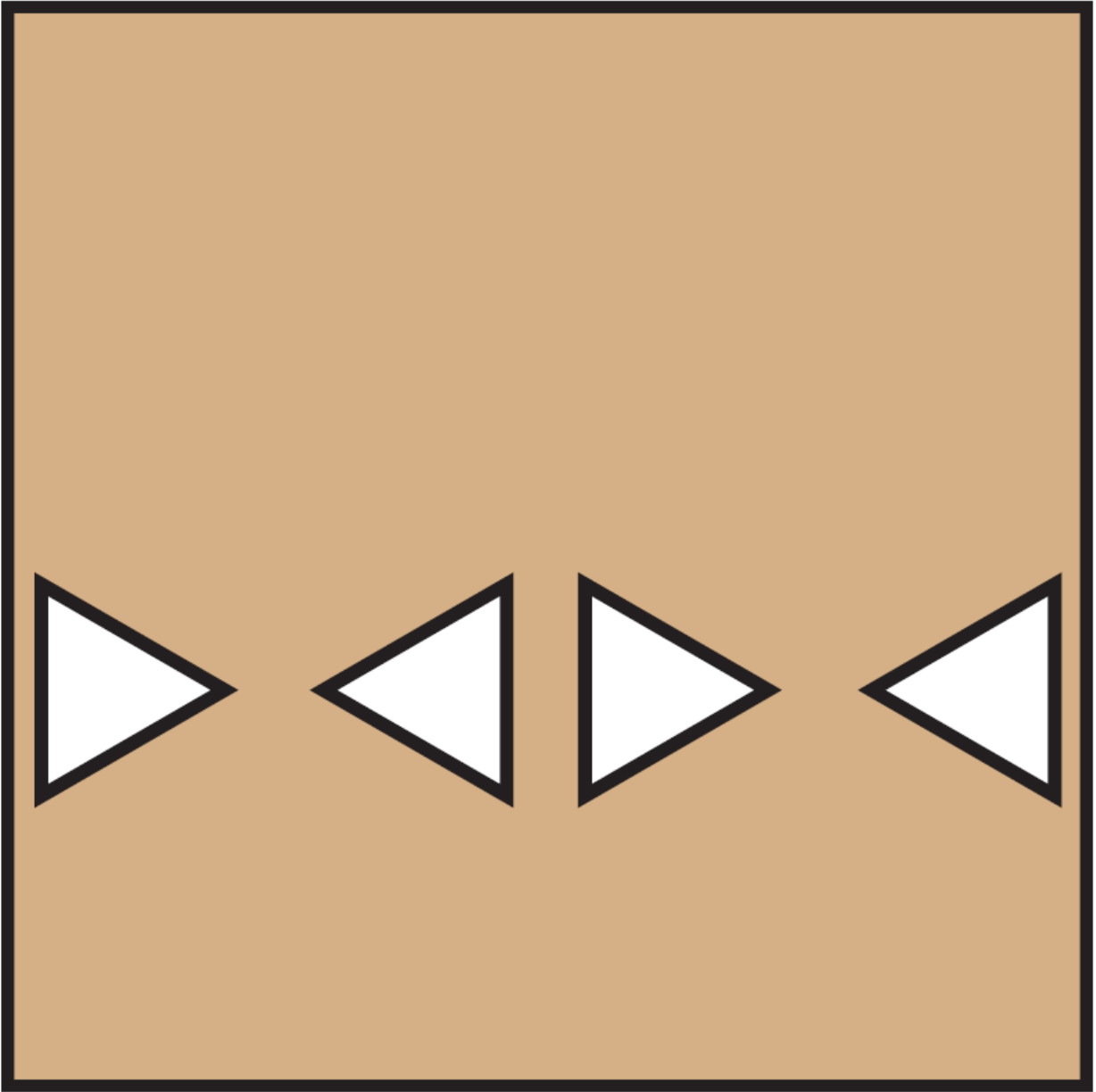
P3



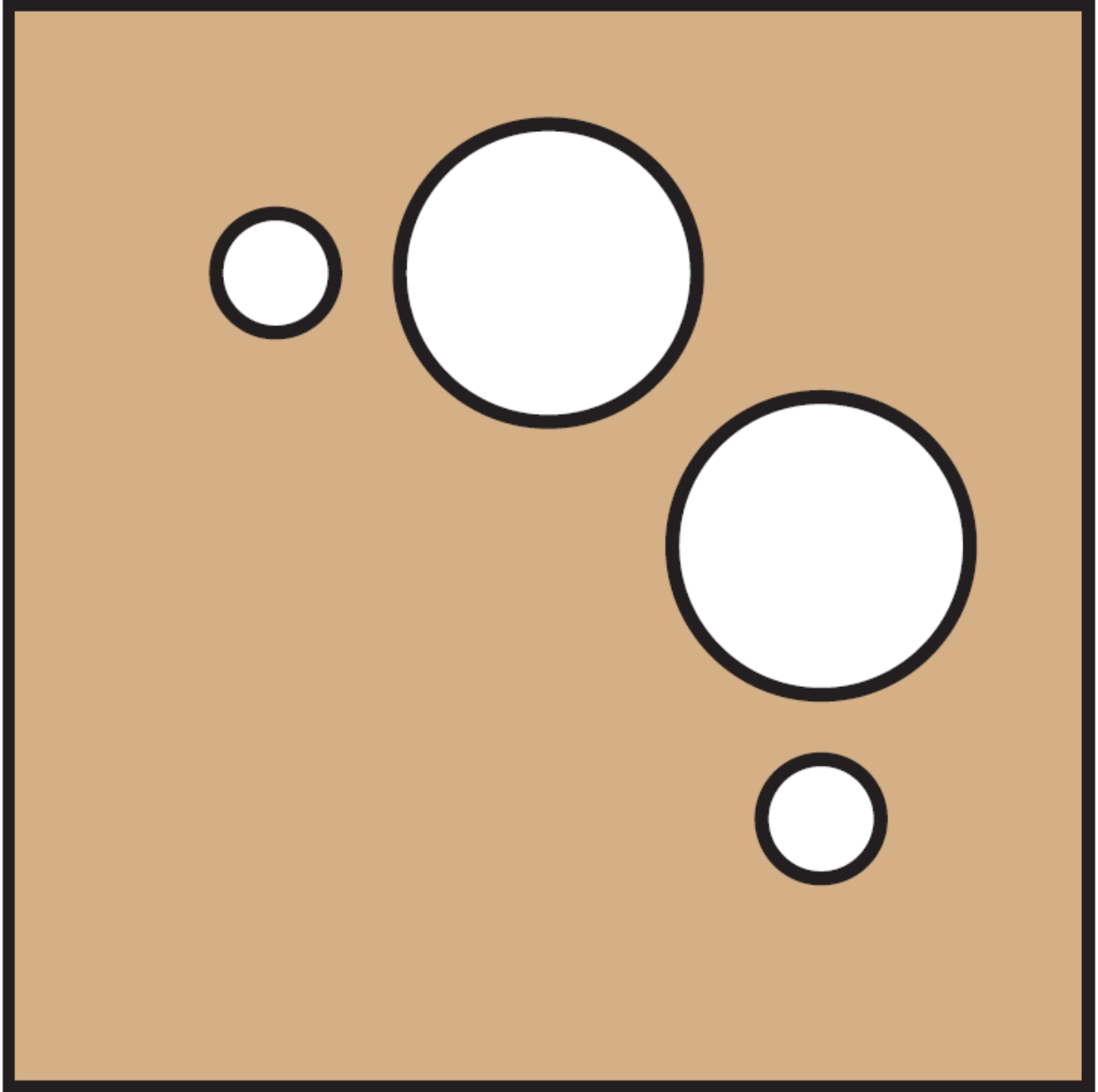




P5



P6



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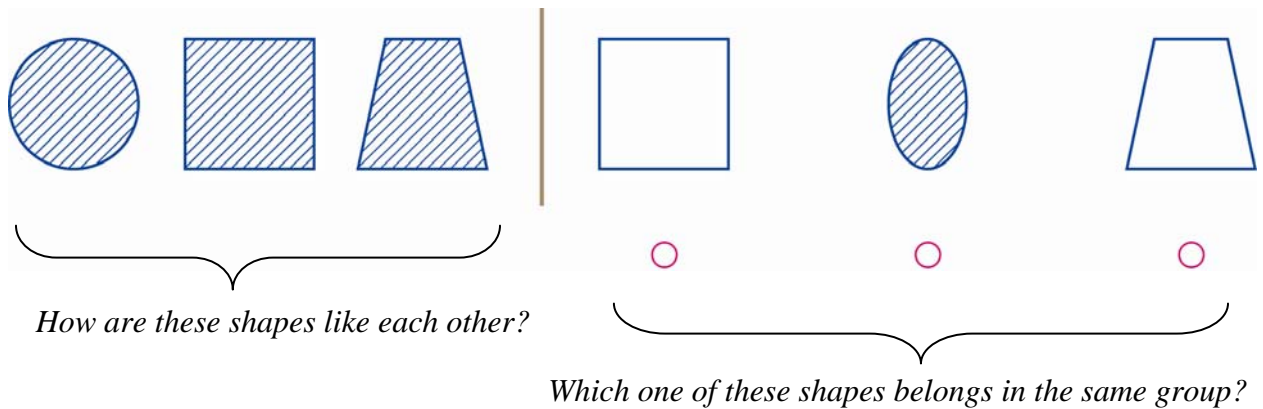
## Test 9: Figure Classification, Level 8

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### Part 1: Overview of Figure Classification

The Figure Classification test requires the student to discover and remember simple rules that describe how the shapes are alike. Students must then test the rules they have generated until they find a set of rule that fits one and only one answer choice. Each question uses a new set of rules that create a novel problem, so during this practice test students should focus on learning general techniques for testing classification rules, not memorizing specific rules.

In this test, students will solve questions that look like this:



When practicing the Figure Classification questions, encourage students to use these strategies.

- Think of (and say silently) a rule that describes the similarities among the first three pictures. For example, all of the shapes have stripes.
- Test the rule on each answer choice, eliminating answers choices that do not fit the rule.
- Look for a more precise rule if more than one answer choice fits the rule.

Students at this level tend to make the following common mistakes.

- Students might overlook a critical feature of the first three pictures. For example, in the sample above, the student may notice the exterior shape, but ignore the shading.
- Students may choose an answer based on only part of the first three pictures. For example, the student might select the first or third answer choice because it has the same shape as one of the first three pictures.
- Students might select an answer choice before checking all the answer choices.

## Part 2: Figure Classification Practice Test Script

The following script covers many issues that will help students do their best on the test. Read aloud the text printed in *blue italics*: these are directions to the students. Directions for you are in parentheses and should NOT be read aloud. Feel free to modify the script to ensure that students understand what they are supposed to do and how to do it.

It may be helpful to make copies of the practice questions in order to display them one at a time on an overhead projector. If this is not possible, hold up a copy of the student practice booklet and point to different parts of each practice question as you discuss them with the class.

(Make sure each student has a practice booklet. Then **SAY**:)

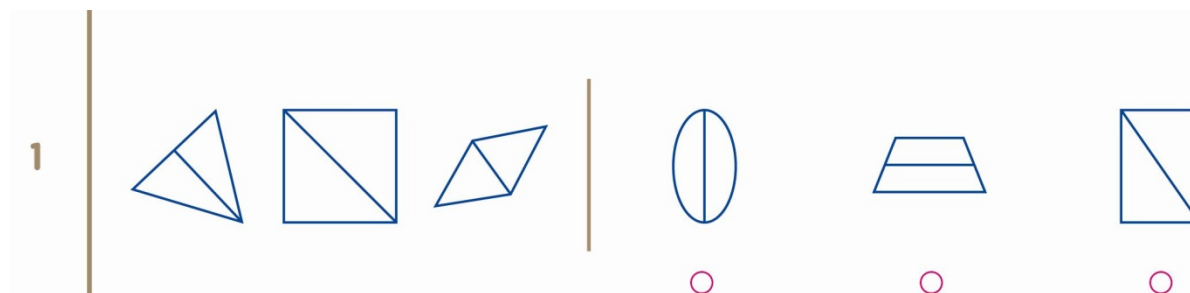
*Open your practice booklet to page 6. You should be on the page with the suns across the top.*

(Check that all students have the correct page.)

*To answer these questions, look for how the first three shapes are like each other. Then find the answer choice that is most like the first three shapes.*

**P1**

*Let's do the first practice question.*



(Hold up your copy of the test booklet and point to the first three pictures as you **SAY**:)

*Look at the first three pictures. How are they like each other?*

(Encourage responses. Some of the possibilities:)

- All three have a slanted line inside.
- The line cuts the shape in half, into two equal parts.
- The shapes have corners.

*Now look at the answer pictures on the other side of the question.*

(Point to the answer choices as you ask about each possibility:)

*Which one has a slanted line inside? Which one has a line that cuts the shape in half, into two equal parts? Which one has corners?*

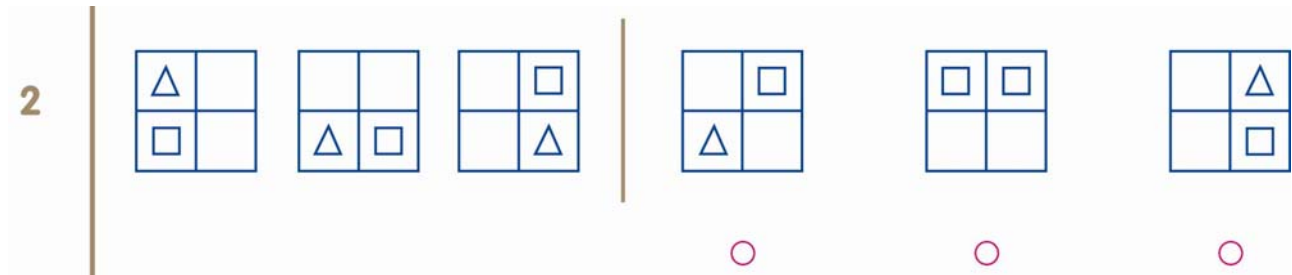
(Encourage responses.)

*Only the last shape has a slanted line that cuts the shape in two. Fill in the circle under the last shape to show that it is the correct answer.*

(Explain how the last shape is the only answer choice that fits all four rules. Then check to make sure that all students have filled in the last circle.)

## P2

*Let's do the second practice question.*



(Hold up your copy of the test booklet and point to the first three pictures as you **SAY**.)

*Look at the first three pictures. How are these three pictures like each other?*

(Give students a minute to study the pictures. Then encourage responses.)

*All three have a square and a triangle inside.*

*Now look at the answer choice pictures on the other side of the question.*

(Point to the answer choices as you **SAY**.)

*Which ones have a square and a triangle?*

(Encourage responses. Then point to the first and third answer choices as you **SAY**.)

*The first and third pictures both have a square and a triangle. We need another rule to decide which one is correct.*

(Point back to the first three pictures as you **SAY**.)

*How else are the first three pictures the same?*

(Encourage responses.)

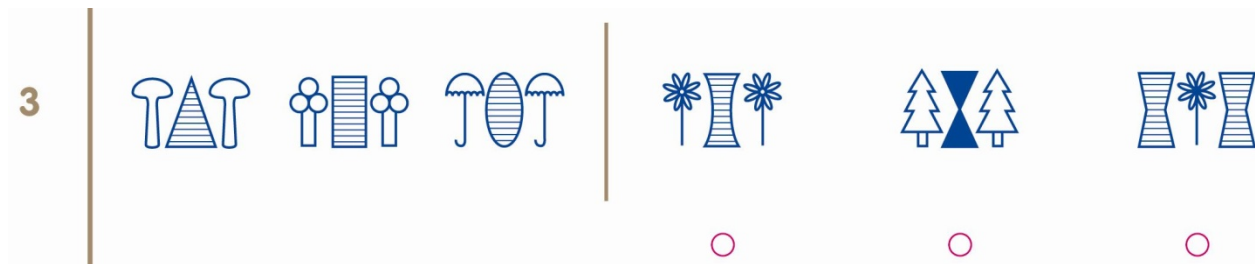
The square and triangle are next to each other in all three pictures. So which answer picture should we choose?

The third picture is the best answer. It has a triangle and a square next to each other. Fill in the circle under the third picture to show that it is the correct answer.

(Check to make sure that all students have filled in the third circle.)

### P3

Let's do the next practice question.



Look at the first three pictures. How are they like each other?

(Encourage responses.)

All three have the same shape on both sides and a different shape in the middle.

How are the middle shapes alike? All of them have the same lines.

Now look at the pictures of the answer choices on the other side of the question.

(Point to the answer choices as you **SAY**.)

Which one has the same shape on both sides and a shape in the middle with lines?

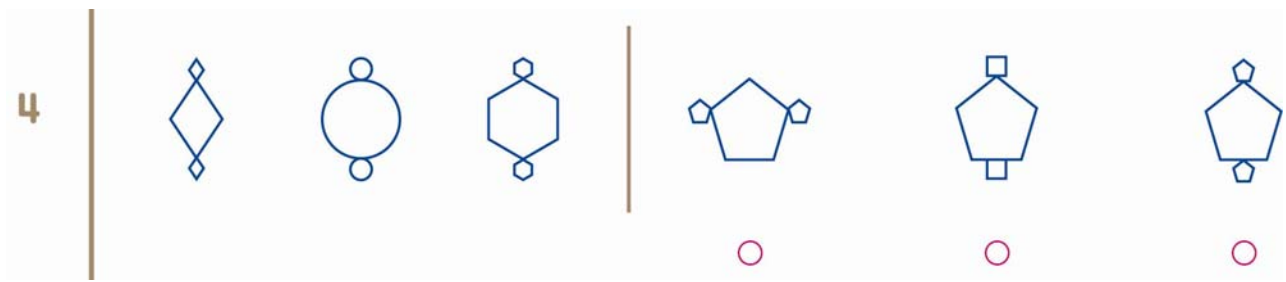
(Encourage responses. Then point to the first answer choice as you **SAY**.)

The first answer picture is the only one with a middle shape with lines inside. Fill in the circle under the first picture to show that it is the correct answer.

(Check to make sure that all students have filled in the first circle.)

### P4

Let's do the next practice question.



*Look at the first three pictures. How are they like each other?*

(Encourage responses. Talk about different suggestions. Then **SAY**.)

*All three have a big shape in the middle and two small shapes that are the same: one on the top and one on the bottom.*

*Now look at the answer pictures on the other side of the question.*

(Point to the answer choices as you **SAY**.)

*Which ones have a big shape in the middle and small shapes on the top and bottom?*

(Encourage responses. Then point to the last two answer choices as you **SAY**.)

*These two do. We need to find another rule to decide which answer choice is correct.*

(Point back to the first three pictures as you **SAY**.)

*How else are these three pictures the same?*

(Encourage responses.)

*The two small shapes are the same shape as the big shape. Which answer picture shows this?*

(Encourage responses. Then point to the last answer choice as you **SAY**.)

*The last answer picture is correct. It has a big shape and two smaller ones on the top and bottom that are all the same shape.*

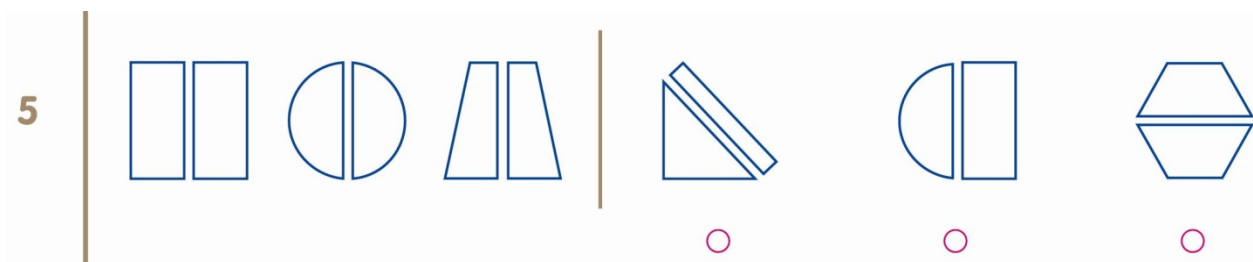
(Check to make sure that all students have filled in the last circle.)

*Turn to the next page. You should be on the page with the **pears** across the top.*

## P5

*Look at the next practice question. Try to solve this practice question on your own.*





(Make sure students have enough time to solve the problem. Then **SAY**.)

*Which answer picture is most like the first three shapes?*

(Encourage responses.)

*How did you answer this question?*

(Encourage responses. If there are students who don't understand how to solve the question, go through the process as follows.)

*How are the first three pictures like each other?*

(Encourage responses.)

*All three look like a shape divided in half.*

*Now look at the shapes on the other side of the question.*

(Point to the answer choices as you **SAY**.)

*Which ones look like they were divided in half?*

(Encourage responses. Then point to the first two answer choices as you **SAY**.)

*These are divided, but not in half.*

(Point to the last shape as you **SAY**.)

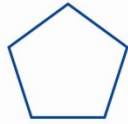
*Only this one looks right. The last picture shows a shape (a hexagon) divided in half. Fill in the circle under the last answer picture to show that it is the correct answer.*

(Check to make sure that all students have filled in the last circle.)

## P6

*Look at the last practice question. Try to solve this practice question on your own.*

6



(Make sure students have enough time to solve the problem. Then **SAY**!)

*Which answer picture is most like the first three shapes?*

(Encourage responses.)

*How did you answer this question?*

(Encourage responses. If there are students who don't understand how to solve the question, go through the process as follows.)

*How are the first three shapes like each other?*

(Encourage responses.)

*Sometimes it is hard to tell how they are alike until you look at the answer choices. Look at the answer shapes on the other side of the question.*

(Point to the answer choices as you **SAY**!)

*Does anyone see a rule we can use to choose an answer?*

(Encourage responses. Then point to the second answer choice as you **SAY**!)

*This one has all sharp corners.*

(Point back to the first three shapes as you **SAY**!)

*So do all the shapes on the left.*

(Point back to the other choices as you **SAY**!)

*All the other choices have some rounded corners. With this rule, we find only one answer. Does everyone understand why we used this rule?*

(Check that students understand. Explain further if there is any confusion.)

*So the second shape (the hexagon) is the correct answer. Fill in the circle under the second shape to show that it is the correct answer.*

(Check to make sure that all students have filled in the second circle.)