Instruction Cards Sample





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Instruction Cards



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Tunnel to 100

Objective Dig a tunnel to the surface by counting on to 100 on the number line.

Directions

- 1. Place your pawn at the start of the number line. Place your 12 counters next to you.
- 2. Roll the number cubes. Count out counters to match the number that appears on each number cube you rolled.
- **3.** Place the counters on the number line on the numbers in front of your pawn. Say the next number as you place each counter. For example, if your pawn is at 5 and you place 3 counters, you would count on "6, 7, 8."
- **4.** Move your pawn to the space with the last counter. Then, put your counters back in your pile.
- **5.** Continue taking turns rolling the number cubes and counting on the number line. Remember to start at your new number each time.
- 6. The first player to reach 100 is the winner!



- Number Line to 100 Game Board (1 per group)
- Counters (12 per player; reds, greens, or yellows)
- Number cube 1-6 (2 per group)
- Pawns (1 per player)

FOR THE TEACHER Tunnel to 100

Math Focus

Count on to 100.

Set-Up

• No additional set-up needed.

Tips

- Determine who goes first. Remind players to continue playing in a clockwise direction.
- Because of the size of the spaces on the number line, show the players how to place their pawns on a space if there is more than one pawn on the same space.
- Encourage players to use precise language. "I'm at 76. I'm counting on 4. That's 77, 78, 79, 80."
- Reinforce with players that the counters are to help them keep track of how many they need to count on.
- If time runs out, the player closest to 100 wins! If there is a tie, players will roll one number cube to make one last move along the number line. The player now closest to 100 wins!

- Variation 1: Have players only use one number cube to practice counting on numbers less than ten at each turn.
- Variation 2: If time is short, choose a non-zero number for students to begin counting at. For example, students could start counting on at 50 instead of 0.

Race to the Rescue

Objective Reach the dragon first and save the day by adding and subtracting using a number sentence.

Directions

- 1. Place the game board in the middle of the group. Place the *Race to the Rescue Cards* near the game board.
- **2.** Place your pawn at the start and 10 counters in front of you.
- **3.** Draw a card. Find the sum or difference of the number sentence on your card. Use your counters to help you find the answer.
- **4.** Tell your answer to the group. They will make sure you are correct.
- **5.** Your answer tells you how many spaces to move your pawn along the game board. If you land on a space with a star, you can draw another card and move again.
- **6.** Continue taking turns drawing cards and moving along the game board.
- 7. The first player to reach the dragon is the winner!



- Destination Dragon Game Board (1 per group)
- Race to the Rescue Cards (1 set per group)
- Counters (10 per player)
- Pawns (1 per player)

Race to the Rescue

Math Focus

Add and subtract to 10.

Set-Up

• Cut apart and shuffle the Race to the Rescue Cards.

Tips

- Determine who goes first. Remind players to continue playing in a clockwise direction.
- Encourage players to use the counters to help them solve the number sentences. For addition, they can model the two parts of an addition fact and count to find the sum. For subtraction, they can model the starting number (the minuend) and take counters away to find a difference.
- Players can also model the problems using movement on the game board. To show 5 + 3, a player could move forward 5 spaces, then forward 3 more spaces. To show 4 1, a player could move 4 spaces forward and 1 space backwards.
- If time runs out, the player that is closest to the dragon is the winner. If there is a tie, have players draw a *Race to the Rescue Card*. The player whose expression has the largest sum or difference is the winner!

- **Variation 1:** Focus on either addition or subtraction by playing with a subset of the *Race to the Rescue Cards*.
- Variation 2: Start with all the *Race to the Rescue Cards* laid out next to the game board, face up. A player spins a transparent spinner labelled 0 to 10. The player needs to find a fact whose sum or difference is the same as the number they spun. If they can find a correct fact, they move that number of spaces along the board. If they land on a space with a star, they get to spin again.

Fruit Collector

Objective Be the first to collect eight of one type of fruit by creating and interpreting bar graphs.

Directions

- **1.** Place the bucket of *Fruit Cards*, the *Fruit Collector Question Cards*, and the color tiles in the center of the group.
- 2. Put your *Fruit Collector Bar Graph* in front of you.
- **3.** Each player draws two fruit cards from the bucket. For each fruit card, place a color tile on your bar graph to show one fruit. Use a different color of tile for each fruit: green (apple), yellow (banana), red (strawberry), and blue (blueberry).
- 4. Return the fruit cards to the bucket.
- **5.** Draw a question card. Use your bar graph to answer the question.

If you are correct: Spin the spinner. The number on the spinner tells you how many fruit cards to take. Place a tile on your bar graph to show the type of fruit on each card. Return the fruit cards to the bucket. If you do not have eight of one type of fruit, it is the next player's turn.

If you are incorrect: It is the next player's turn.

- 6. Discard the question card face up.
- **7.** Continue taking turns drawing question cards, and, if correct, spinning the spinner, drawing fruit cards, and placing tiles on the bar graph.
- **8.** The first player to collect eight of one type of fruit wins!

- Fruit Cards

 (1 set per group)
- Fruit Collector Bar Graph (1 per player)
- Fruit Collector Question Cards (1 set per group)
- Color tiles (32 of each color per group)
- Spinner 1–4 (1 per group)
- Small bucket (1 per group)

FOR THE TEACHER

Fruit Collector

Math Focus

Create and interpret bar and picture graphs that represent data sets.

Set-Up

- Cut apart the Fruit Cards and place them in the bucket.
- Cut apart and shuffle the Fruit Collector Question Cards.

Tips

- Determine who goes first. Remind players to continue playing in a clockwise direction.
- Remind players that each color tile on the graph represents one piece of fruit. So, if they have seven color tiles above "banana," they have seven bananas in all.
- If all of the question cards are used during the game, reshuffle them and return the deck to the middle of the group.
- In case of a tie, have one player close their eyes and randomly choose a color tile from the pile. The tied player with the most of that color tile draws a question card. To win the game, that player must correctly answer the question on the question card.

Variations

• Variation 1: Play as in the original game, but use the *Fruit Collector Picture Graph*. After players collect *Fruit Cards*, they place their cards directly onto the picture graph instead of using the color tiles. For this variation, use seven cut-apart copies of the *Fruit Cards* for each group.

Riddles in the Labyrinth

Objective Collect three riddle cards and get to a finish by identifying and explaining patterns in multiplication.

Directions

- **1.** Put the game board and *Multiplication Table* in the center of the group.
- **2.** Put the *Riddle Cards* near the board. Put your pawn at the start.
- **3.** Roll the number cube. The number on the cube tells you how many spaces to move on the game board. You can move forward or backward.
- **4.** Draw a card each time you pass or land on a creature or question mark. If you land on a lantern, you can move to any other lantern on the board.
- **5.** Once you have finished moving, try to answer the question on the card.
- **6.** The group will make sure each answer is correct. For each card:

If you are correct: Keep the card.

If you are incorrect: It is the next player's turn. Return your card to the bottom of the pile.

- **7.** When you have collected three cards, move toward a finish on each turn.
- **8.** The first player to reach a finish with three cards wins! If time runs out before a player finishes, the player with the most cards is the winner.



- Creature Cavern Game Board (1 per group)
- *Multiplication Table* (1 per group)
- *Riddle Cards* (1 set per group)
- Number cube 1–6 (1 per group)
- Pawns (1 per player)

Riddles in the Labyrinth

Math Focus

Identify and explain arithmetic patterns in multiplication up to 10 imes 10.

Set-Up

• Cut apart and shuffle the *Riddle Cards*.

Tips

- Determine who goes first. Remind players to continue playing in a clockwise direction.
- Review this vocabulary with players before they begin: *row*, *column*, *factor*, and *product*.
- There may be multiple answers to a riddle card. Encourage groups to look at the multiplication table and agree or disagree with the answer the player gives. Encourage group members to communicate their reasoning clearly and precisely.
- If players are tied, have them count the spaces between their pawns and the nearest finish. The player closest to a finish is the winner. If the players are equally close, have them each roll the number cube. The player who can move the closest to a finish wins.

Variation

• Variation 1: Use this game to practice multiplication. Create four sets of number cards 1–12, and shuffle them together. Have players draw two cards when they pass an obstacle and find the product of the two numbers. If they are correct, they keep both number cards. The first player to collect 10 cards and finish wins!

A Scaly Situation

Objective Get the most points by solving word problems about scaled bar graphs.

Directions

- 1. Put the *Word Problem Cards*, *A Scaly Situation Bar Graph*, number cards, and color tiles in the middle of the group. Place *A Scaly Situation Record Sheet* next to you.
- **2.** You will build a graph for the group. Draw two number cards. Keep them hidden.
- The number of tiles in each column should match a number card. Start building at the bottom of the graph. Place color tiles above "Column 1" and "Column 2" on the graph. Return the number cards to the bottom of the pile.
- **4.** Spin the spinner for a scale factor. The scale factor is the value of each color tile. The other players will write this scale factor on their record sheets.
- **5.** Draw a word problem card. Read it aloud to the group. Lay it face up for all players to see. The other players will solve this word problem.
- 6. Have the other players multiply the number of tiles in each column by the scale factor. Then have players write the answer to the word problem on their record sheets. Players should turn them over to keep them hidden.
- Once all players have finished writing, flip over your record sheets. All players should agree on the answer. If you answered correctly, you get a point! Record your point by circling your correct answer.
- **8.** Move the tiles off the graph. Take turns completing steps 2–7.
- **9.** The player with the most points after the final round wins! If time runs out before a round is complete, the player with the most points wins.

- A Scaly Situation Bar Graph (1 per group)
- A Scaly Situation Record Sheet (1 per player)
- Word Problem Cards (1 set per group)
- Color tiles (16 of one color per group)
- Number cards 1–8 (1 set per group)
- Spinner 1–4 (1 per group)
- Pencils (1 per player)

A Scaly Situation

Math Focus

Construct and interpret scaled bar graphs representing word problems.

Set-Up

- Cut apart and shuffle the Word Problem Cards.
- Make a number card deck using only cards 1–8. Ensure the cards are shuffled.

Tips

- Determine who goes first. Remind players to continue playing in a clockwise direction.
- Model building the graph and solving the first word problem for players.
- Players may label what each column represents as the word problem is read aloud.
- At the end of the game, if players are tied, have the tied players spin the spinner. The player who spins the greatest number wins!

- Variation 1: To encourage creativity, have the player building the graph tell the other players what the columns represent (instead of using the *Word Problem Cards*), and then give them a question. When setting up this game, remind players of different kinds of questions, such as: "How many in all?", "How many more?", and "How many fewer?"
- Variation 2: Use a number cube 1–6 instead of the spinner to increase the possible scale factor to six.

Fraction Frenzy

Objective Collect cards by having the greater fraction sum.

Directions

- **1.** Put your deck of *Fraction Adding Cards* in front of you.
- 2. Put the fraction tiles near you and your opponent.
- **3.** You and your opponent each draw a card.
- **4.** Find the sum of the fractions on your card. You can use the fraction tiles to help.
- **5.** The player with the greatest sum keeps both cards.
- 6. If the sums on both cards are the same, you both draw another card. The player with the greatest sum takes **all** of the cards.
- **7.** Continue playing by drawing cards and finding sums. The player with the greatest sum takes the cards.
- 8. When time runs out, the player with the most cards is the winner! If there is a tie, you both randomly choose a card from your piles. The player with the greatest answer is the winner!

- Fraction Adding Cards (1 set per player)
- Fraction tiles (1 set per 2 players)
- Paper (1 sheet per player)
- Pencils (1 per player)

FOR THE TEACHER

Fraction Frenzy

Math Focus

Find the sum of two fractions.

Set-Up

• Cut apart and shuffle Fraction Adding Cards.

Tips

- Help players determine who goes first.
- This is a game for two players.
- The first time you play, give each deck to a player along with a different colored crayon. Have them color the backs of their cards. This will make the cards much easier to sort at the end of each game.
- Encourage players to use the fraction tiles at the beginning. That way they can connect adding fractions to adding numbers. 1 + 2 = 3, and 1 fourth + 2 fourths = 3 fourths.
- Review adding and subtracting fractions with common denominators.

- **Variation 1:** Have players play with *Fraction Subtracting Cards* and compare fraction differences instead of sums.
- Variation 2: Have players combine the *Fraction Adding Cards* and the *Fraction Subtracting Cards* to play with addition and subtraction at the same time.

The Great Expression Trek

Objective Collect 3 points by building and evaluating algebraic expressions.

Directions

- Put the game board in the middle of the group. Put the game cards near the game board.
- 2. Place your *Expression Record Sheet* next to you. Place your pawn in the circle in the center of the game board. Players can move backward or forward during the game.
- **3.** Roll the number cube. The number tells you how many spaces to move around the game board.
- **4.** If you land on or pass an object, draw a number card. Write that number in one of the boxes on your sheet. Return the number card to the deck.
- **5.** If you land on or pass a red or green space, spin the spinner. Write the operation you spin in one of the circles on your sheet.
- **6.** Continue taking turns rolling the number cube, moving around the board, and writing numbers and operations.
- 7. When all of the boxes and circles of an expression are filled in, evaluate your expression. The group will make sure you are correct.

If you are correct: Take a game card and gain 1 point.

If you are incorrect: Your turn is over. You can try to evaluate your expression again on your next turn.

8. The first player to get 3 points is the winner! If time runs out, the player with the most points is the winner. If there is a tie, the tied players roll the number cube. The player that rolls the greatest number is the winner.



- Urban Trek Game Board (1 per group)
- Urban Trek Game Cards (1 set per group)
- Expression Record Sheet (1 per player)
- Number cards 1–25 (1 set per group)
- Number cube 1–6 (1 per group)
- Pawns
 (1 per player)
- Transparent spinner (1 per group)
- Pencils (1 per player)

The Great Expression Trek

Math Focus

Write and evaluate algebraic expressions.

Set-Up

- Divide the transparent spinner into 4 sections. Label three sections "Add +", and one section "Multiply \times ".
- Create a deck of number cards using numbers 1–25. Ensure the deck is shuffled.

Tips

- Determine who goes first. Remind players to continue playing in a clockwise direction.
- The game operations have been restricted to addition and multiplication to ensure players do not generate negative or decimal numbers.
- Remind players that they can strategically move backward or forward and between paths through the center of the game board.
- Players can choose which expression row they place their numbers and operations in. They can use more than one row even if the first row isn't complete. For example, if players have large numbers in one row, they may choose to place a multiplication symbol that they have spun in a different row to make their expressions easier to simplify.

- Variation 1: Use the *Basic Expression Record Sheet* to have players build expressions that do not include parentheses.
- Variation 2: After one player completes 6 equations, the game is over. Players then find the sum of all of the answers on their *Expression Record Sheet*. The player with the largest sum is the winner. This encourages players to strategically place numbers and symbols to create the largest possible answers.

Creatures under the Surface

Objective Be the first to escape the cavern by finding the surface area of 5 three-dimensional figures.

Directions

- Place the game board in the center of the group. Put the Surface Area Cards near the game board. Put your pawn at the start.
- 2. Roll the number cube. The number on the cube tells you how many spaces, forward or backward, you can move on the game board.
- **3.** While moving on the game board, stop when you reach a creature and draw a card. Find the surface area of the figure on the card. The group will make sure you are correct. If you are correct, keep the card. If you are incorrect, discard the card to the bottom of the deck.
- 4. If you land on an obstacle (lantern or question mark), "teleport" your pawn to a different space on the game board with that same obstacle. For example, if you land on a lantern, and a creature is near a different lantern, you may want to teleport to that lantern in order to be closer to a creature.
- **5.** Continue taking turns rolling the number cube, moving around the game board, and finding the surface area of figures.
- 6. When you have found the surface area of 5 figures, roll the number cube on your turn to move to any finish on the game board. You no longer need to stop when you reach a creature.
- 7. The first player to reach one of the finishes with 5 cards is the winner! If time runs out, the player with the most cards is the winner. If there is a tie, the player who is closest to a finish is the winner.

CREATURE CAVERN



- Creature Cavern Game Board (1 per group)
- Surface Area Cards (1 set per group)
- Number cube 1–6 (1 per group)
- Pawns (1 per player)
- Calculator (optional)
- Paper (1 sheet per player)
- Pencils (1 per player)

Creatures under the Surface

Math Focus

Find the surface area of three-dimensional figures.

Set-Up

• Cut apart and shuffle the Surface Area Cards.

Tips

- Determine who goes first. Remind players to continue playing in a clockwise direction.
- Remind players that they can move forward or backward on the game board. Encourage players to think about moving strategically around the board. Landing on an obstacle (lantern or question mark) can teleport a player closer to a creature and/or a finish.
- Players may benefit from reviewing nets of three-dimensional figures before starting play. Give players an example of how a solid figure can be represented by a net. Players may want to sketch nets to help in finding the surface areas.

- **Variation 1:** Have players use only the *Surface Area Cards* with figures and not the cards with nets.
- Variation 2: Challenge players to gather at least one rectangular prism, one triangular prism, and one pyramid.

Scaling the Job Site

Objective Be the first contractor to make \$2,000 by using scale drawings to find measurements.

Directions

- 1. Place the game board in the center of the group. Put the *Architectural Blueprints* and *Job Site Cards* next to their appropriate circuits.
- 2. Place your pawn in the circle in the center of the board. Players can move backward or forward during the game.
- **3.** To start, choose a circuit. Throughout gameplay, you are free to travel to different circuits.
- **4.** Roll the number cube and move that many spaces.

If you land on a green space: Draw a card for that circuit. Then use the blueprint and scale factor from the blueprint to answer the question. Give your answer in feet.

If you land on an object: Draw 2 cards and solve.

If you land on a red space: You may teleport to another red space on any circuit.

5. Once you give your answer, the group will make sure you are correct.

If you are correct: Keep the card. The dollar value on the card is how much money you earned.

If you are incorrect: Return the card to the bottom of the deck.

- 6. Continue taking turns rolling the number cube, moving around the game board, drawing cards, and solving problems. Remember, you are free to travel through different circuits.
- 7. The game is over when one player has earned \$2,000. If time runs out, the player with the greatest amount earned is the winner. If there is a tie, the tied player with a single card worth the greatest amount of money is the winner.



- Urban Trek Game Board (1 per group)
- Architectural Blueprints (1 set per group)
- Job Site Cards (1 set per group)
- Number cube 1–6 (1 per group)
- Pawns
 (1 per player)
- Calculator (optional)
- Paper
 (1 sheet per player)
- Pencils
 (1 per player)

FOR THE TEACHER

Scaling the Job Site

Math Focus

Solve problems involving scale drawings of figures.

Set-up

• Cut apart the Job Site Cards and Architectural Blueprints. Keep the 4 sets of Job Site Cards in 4 separate piles.

Tips

- Determine who goes first. Remind players to continue playing in a clockwise direction.
- Encourage players who struggle with the content to start on the subway platform. It has the easiest questions, on average, and could help build a player's confidence before jumping to another circuit.
 Players can use the red spaces to easily jump from one circuit to another.
- It may be helpful to have a second set of blueprints so that a player's calculations can be checked more quickly.

Variation

• Variation 1: Cover the default scale factors on the blueprints. Use a transparent spinner and label it with a variety of scale factors to increase or decrease the difficulty of the game. For example, label the spinner with only whole numbers or with decimal numbers.

Number Line Fill Up

Objective Place the greatest number of tiles on the game board by estimating rational and irrational numbers.

Directions

- Place the game board in the center of the group. Put the Number Line Fill Up Cards near the game board. Place your tiles next to you.
- 2. Draw 4 cards. Look at all of your cards.
- **3.** Choose one card and estimate the value of the number on that card. Do this by deciding which two whole numbers the value of the number is between. Place a tile on the game board in the space between the two whole numbers. The group will make sure that you are correct.
- **4.** If you have multiple cards with a number that falls between the same two whole numbers, you can play them at the same time. Play one tile per card and place tiles one above the other.
- If a tile is already placed between two whole numbers, place your tile(s) above the other tile(s).
- Discard your used card(s) to the bottom of the pile. Draw new cards so that you have a total of 4 in your hand at all times.
- 7. Continue taking turns estimating the value of the number on your card(s) and placing tile(s) on the game board.
- **8.** The player who runs out of tiles first is the winner. If time runs out, the player who has the most tiles on the game board is the winner. If there is a tie, each player draws one card, and the player with the greater value wins.



- GalaX,Y Game Board (1 per group)
- Number Line Fill Up Cards (1 set per group)
- Color tiles (15 of one color per player)
- Calculator

FOR THE TEACHER Number Line Fill Up

Math Focus

Approximate rational and irrational numbers.

Set-Up

- Cut apart and shuffle the Number Line Fill Up Cards.
- Number the line across the bottom of the game board from 0 to 9.

Tips

- Determine who goes first. Remind players to continue playing in a clockwise direction.
- Encourage players to keep their cards sorted by values. This will make it easier to know if multiple cards can be played in one turn.

Variation

• Variation 1: Play in groups of two with just the *Number Line Fill Up Cards*. Give each player a deck of cards. Players draw one card each from their own decks. Players estimate the value of the number on their own card to the nearest whole number. The player with the greatest value wins both cards.

I've Been Transformed!

Objective Reach the top of the game board by transforming triangles.

Directions

- **1.** Place the game board in the center of the group. Place the cards face down near the game board.
- 2. Choose a triangle and a color path. Place your triangle at the bottom of that path with one of the legs being the base.
- **3.** On your turn, draw a card. The card gives you the transformation to apply to your triangle. You can move into other color paths during your turn.

If translating: Move horizontally or vertically 3 units.

If rotating: Rotate your triangle around any one of the vertices.

If reflecting: Reflect your triangle across the side of the triangle given on the card.

- **4.** Tell the group about your transformation and move your triangle on the grid. The group will make sure you are correct. If your transformation puts part of your triangle on a broken handhold, on another player's triangle, or off a side of the board, you cannot move your triangle and lose your turn.
- **5.** Continue taking turns drawing a card, describing your transformation, and moving your triangle on the game board. Discard your used card to the bottom of the pile.
- 6. The first player to have any part of their triangle reach or pass the top of the game board is the winner. If time runs out, the player closest to the top of the game board is the winner. If there is a tie, players each draw a transformation card. The player whose card brings them the closest to the top is the winner.

CLIMBER'S CHALLENGE

Materials

- Climber's Challenge Game Board (1 per group)
- Transformation Cards with Triangles (2 sets per group)





Handhold

Broken Handhold

FOR THE TEACHER

I've Been Transformed!

Math Focus

Identify and describe transformations.

Set-Up

- Cut apart the cards and triangles from *Transformation Cards with Triangles*.
- Color the front and back of one triangle for each player. Each triangle should be a different color.
- Shuffle the cards.

Tips

- Determine who goes first. Remind players to continue playing in a clockwise direction.
- Players may benefit from a review of the different types of transformations used in the game: translation, rotation, and reflection.
- Encourage players to move strategically to avoid broken handholds and other players' triangles.

Variation

• Variation 1: Have players draw 2 or more cards to apply more than one transformation to their triangle in one round. Players need to apply transformations in the order that they draw the cards. The same transformations applied in a different order can have different results.