Number Worlds™

Accelerate Math Success

Warm Up and Activity Cards

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Level C

Contents

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Object Land

ACTIVITY 2

Feed the Animals

Objectives

- Count a set of objects and say how many there are
- Match numerals to set size 11–20
- Arrange quantities and numerals from smallest to biggest

Materials

Program Materials

- Counters, four bags with varying quantities from 11 to 20; use four colors so that each bag has a different color

- Number Cards (11–20)

- Zoo Pictures

Introduce the Game

Tell students that today they are going to pretend they work at a zoo and that it is their job to feed the cheetahs, tigers, zebras, and monkeys. Show students the four Zoo Cards and the bags of Counters (pretend food for the animals).

Play

- If playing with more than four students, arrange students in four groups. Sit in a semicircle with students.
- Explain that each animal gets a different amount of food. The problem is that the person who made up the bags of food forgot to write down which bag of food was prepared for which animal.
- Tell students that it is very important for each animal to receive the correct amount of food. Students will need to figure out how much food is in each bag and then use those numbers to decide which of the food bags to give to each animal.
- Inform students that the zookeeper gives tigers the most, the zebras get less, the cheetahs get less than the zebras, and the monkeys get the smallest amount.
- Distribute one bag of Counters to each student or group, giving more skilled students greater quantities.
- Have students count their Counters.
- Tell students that they can use numerals to help them remember how many they have so they will not have to recount all the objects if they forget.
- Present all Number Cards (11–20) for students to choose from, and have each student find the numeral that tells how many Counters he or she has.
- Check each student's counting and numeral recognition for accuracy by pointing to the number and asking the student to identify it. Then ask the student to count his or her Counters.
- If a student makes a mistake, help the student find the correct numeral, say its name, and then recount to confirm that the numeral matches the set size.

Concluding Play

- Have students put the Counters back into the bags and place their bag next to their Number Card.
- Ask students to determine which bag of food has the most and which has the least.

Questions to Ask

- ► **How did you know that this bag has the most and this bag has the least? How did you figure this out?**
- ► **Can you arrange the bags of food in a row from smallest to biggest?** Help students arrange the bags in a row with the numeral card displayed at the bottom so that the smallest group and numeral are at the left side of the display and the largest group and numeral are at the right.
- ► **Which animal gets which bag of food? Why?**

Teacher's Note

If a student makes a mistake predicting which bag has the most or least food or has difficulty explaining how they know, have him or her empty the bags and recount the Counters to see which bag has more or less.

Object Land

ACTIVITY 3

Count and Compare

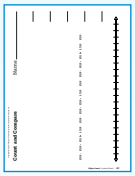
Objectives

- Count a set of two-dimensional objects and write the numeral to indicate the amount
- Use numerals to compare sets of two-dimensional objects and say which have more, less, or the same amount

Materials

Program Materials

Object Land Activity Sheet 1, p. A1, 1 for each student



Additional Materials

- pencils, one for each student
- pictures of small objects (optional)
- glue (optional)

Introduce the Activity

- Explain to students that they will use numbers to tell how many objects are in a set.
- This paper-and-pencil activity can be used with the whole group, or it can be used with a smaller group, allowing you to have more interactions with each student.

Play

- Distribute a copy of Activity Sheet 1 to each student.
- Have students count the objects in each set and write the numeral that tells how many there are in the space provided.

Concluding Play

If students need extra practice matching numerals to set size and using numerals to make relative quantity predictions, continue with the following activity. Have students cut out each set of objects with the corresponding number and then work in pairs or small groups to decide which set is the smallest, the next smallest, and the next, up to the biggest set. After students have decided on the correct sequence, have them glue the pictures in order on a blank piece of paper.

Questions to Ask

After students have written the numerals on their activity sheets, have them cover up the objects in their picture and use just the numerals.

- ► **Which set has the most?**
- ► **Which has the least?**
- ► **How did you figure that out?**

Invite students to uncover their pictorial displays to verify their predictions. Ask students to justify their answers and encourage them to use numbers in their responses. For example, a student might say, "Because 15 is more than 14."

Challenge

Use the activity sheet on another day to have students focus on partial sets. Have students color a portion of the objects in each set. Have them compare the colored portions to the uncolored portions to determine if there are more colored or uncolored objects or if there are the same amount of both categories.

Object Land

ACTIVITY 4

Food Fun

Objectives

- Understand the concepts of ***more*** and ***equality***
- Gain initial experience with missing addend problems

Materials

Program Materials

Counters

Introduce the Activity

Tell students that today they are going to make sure that everyone gets the same amount of pretend food.

Play

- Begin the lesson with the question, "Does anyone know what the word *more* means?" Allow discussion and then use sets of Counters to demonstrate what *more* means. Lead students to discover that when more of an item is added to a set, the size of the set increases.
- Distribute unequal quantities of "food" (Counters) to each student, and have students count their food items.
- Ask students how many pieces of food each student would have if everyone had the same amount of food that he or she has.
- After everyone has a chance to respond, explain that you want everyone to have the same amount, or an equal amount, of food, and ask which of the quantities of food students would prefer to have.

Concluding Play

- Verify that students understand what *more* means. After students decide how many pieces of food they would like to have, ask them to try to figure out whether they need more, have enough, or need to give some back.
- Have volunteers answer and demonstrate their understanding, using concrete props if necessary.
- While passing out the additional food items, say the equation that tells how many the student had, plus how many more you are giving him or her, and how many he or she will have altogether.

Questions to Ask

- **How many do you already have?**
- **How many do you want to have altogether?**
- **How many more do you need?**
- **Can we say $6 + 2 = 8$?**

Picture Land

ACTIVITY 5

Concentration

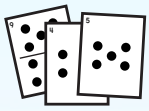
Objectives

- Identify pattern or quantity on a Dot Set Card
- Find a Dot Set Card that matches and verify equivalence by counting
- Identify Number Cards and match them to Dot Set Cards for a Challenge

Materials

Program Materials

- Dot Set Cards (1–10), 2 sets



- Number Cards (1–10), for a Challenge

Prepare Ahead

- Shuffle one set of Dot Set Cards and place them in a pile facedown on a flat surface.
- Shuffle the other set of Dot Set Cards and place them in rows faceup on a flat surface.

Introduce the Activity

Tell students that the object of the game they are going to play today is to find two Dot Set Cards that have the same amount of dots.

Play

- Students will take turns during this activity. During a turn, a student will pick one Dot Set Card from the facedown pile and try to find its match in the faceup rows.
- If the quantities on the two cards are not the same, then the student must keep the card he or she picked and try to find its match on the next turn, return the other card to its original faceup position, and let the next student attempt a match.

Concluding Play

After all of the cards have been matched, students will count their cards. The student with the most cards wins.

Questions to Ask

- ► **Are there too many dots on that card or too few?**
- ► **Are there enough dots on that card to match the amount of dots on your card?**
- ► **How do you know?**

Challenge 1

When students are ready for a challenge, shuffle both decks of cards together and place them in rows facedown on a flat surface. Tell students that this game is like the **Concentration** game they played before, but it is a little more difficult. Have them take turns trying to find a match by turning over two Dot Set Cards.

Challenge 2

To give students practice identifying numerals and matching set size to numerals, have them play **Concentration** using one set of Number Cards and one set of Dot Set Cards.

Questions to Ask

- What number did you pick?
- What number do you need?
- Is the number on that card too high or too low to match the number on your card?
- How do you know?

Object Land

ACTIVITY 6

Party!

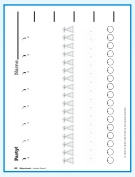
Objective

Use numbers to compare objects and say whether there are enough, too many, or too few

Materials

Program Materials

Object Land Activity Sheet 2, p. A2, 1 for each student



Additional Materials

pencils or crayons for each student

Introduce the Game

Tell students that today they are going to make sure that everyone gets the same amount of party items.

Play

- Distribute an Activity Sheet to each student and tell students a story about your party. Explain that you invited your friends, and you want each of your guests to have a balloon, a hat, a horn, and an orange.
- Tell students that you have invited this many friends (point to students on picture) and that you have these other items to give out at the party (point to the other items).
- Ask students if anyone can tell you a way to figure out if there will be enough of everything for each party guest to have one of each item.
- If no one suggests counting all the party guests and all the party items, suggest it as a way to figure it out.
- Encourage students to agree that counting everything is a reliable method of ensuring that there will be the right amount.
- Have students count all of the party guests and write the number next to the row.

Concluding Play

Verify that everyone has the same amount of party guests, and then allow students to continue on their own to count each set of items and write the numbers next to each set.

Questions to Ask

- **Will there be enough of this item for each party guest to have one?**
- **(if there are not enough) How many students must go without? (Have students draw the additional items needed.)**
- **(if there are enough) Are there exactly enough, or will there be some left over?**
- **(if there are extra items) How many extra items are there? (Have students cross off the extra items.)**
- **How do you know?**
- **How did you figure that out?**

Line Land

ACTIVITY 42

Counting Back

Objectives

- Subtract small quantities from single- and double-digit numbers
- Use formal notation to plot backward progression on a number line

Materials

Program Materials

- Magnetic Number Line, 1 per student
- Magnetic Chips

- Number Cards (1–10); (11–20) for a Challenge

Additional Materials

paper and pencils

Introduce the Activity

- Tell students that they will be playing a subtraction game. Invite volunteers to tell you whether a plus sign or a minus sign is used to write a subtraction problem.
- Distribute a Magnetic Number Line, Magnetic Chips, paper, and a pencil to each student.

Play

- Shuffle the Number Cards, and place them facedown on the table.
- Have students set up their Magnetic Number Lines so there is a Magnetic Chip on numbers 1–20.
- Tell students that they are going to use the Number Cards to determine how many Magnetic Chips they should take away during each turn. They will use their papers and pencils to keep track of how many Magnetic Chips they started with, how many they took away during each turn, and where they ended.
- Have students take turns picking a card and saying what number they are on, how many Magnetic Chips they may remove, and what number they will be on when they finish moving.
- When the group agrees with a student's prediction, the student should remove the Magnetic Chips and write an equation that shows what he or she did.

Concluding Play

The first player to reach 0 will be the winner.

Questions to Ask

- **How many numbers do you need to move?**
- **Where will you be when you do that?**
- **How did you figure that out?**
- **Who is nearest to 0? How do you know?**

Challenge

When students are comfortable with this level of play, challenge them to play the game with Number Cards (1–20).

Sky Land

ACTIVITY 43

Elevator Game

Objective

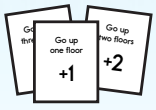
Subtract small quantities from 10 or less

Materials

Program Materials

- Elevator Game Board

- Elevator Cards



- Counters (ten of each color)

- Multi-Land Activity Sheet 2, p. A23 (optional)

Introduce the Activity

- Tell students that to play the Elevator Game they will need to use subtraction to get from the top to the bottom of their building. Review the concepts of addition and subtraction.
- Show students the minus sign, and explain that in math this sign means that something is being taken away. Remind students of the minus cards in the Magnetic Number Line games, and tell them when they pick a minus sign they have to take something away.

Play

- Show students the Elevator Game Board, and tell them to pretend the number lines are buildings that are ten floors high.
- Assign a Counter color and the corresponding number-line building to each student. Have students place a Counter on each of their numbers (floors) up to 10.
- Each student will start on the top floor of the number-line building and race to reach the ground floor first.
- Students will take turns picking a card and removing that many Counters from their number line, starting with the Counter on 10 and going down. If a student picks a +1 (wild card), he or she must add 1 Counter and go up 1 floor. (The student will go onto the roof if this occurs on the first turn.)
- While each student moves, explain with formal language what each student is doing, and write the equation on the Activity Sheet or on the board. After you finish writing the equation, the student should return the card just picked to the bottom of the pile.

Concluding Play

- The winner will be the first student to reach the ground floor by picking the card that matches the exact number of remaining Counters. (Model this concept for students as needed.)
- After a student has won the game, ask the other students to figure out how many more floors they need to go down to be at the ground level.

Questions to Ask

As students play the game, ask questions such as the following:

- **How many did you start with?**
- **How many did you take away?**
- **How many more do you need to take away to reach the ground floor?**

Challenge

Have students gradually assume the role of recorder by first having them tell you how the number story should be written. Then designate one student as recorder, and eventually have each student construct his or her own written record.

Line Land

ACTIVITY 44

Number Line to 100

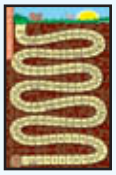
Objectives

- Know the number sequence 1 to 100 and the location of each number in the sequence
- Identify numerals from 1 to 100

Materials

Program Materials

- Number Line Game Board to 100



- Pawns

- Dot Cubes or Number 7–12 Cubes

Additional Materials

paper and pencils

Introduce the Activity

- Tell students that they will play a game in which they will try to get all the way to 100.
- Before starting, have students create a score sheet on a piece of paper by drawing a column for each player and by writing that player's name at the top of the column.

Play

- Have students take turns rolling the Dot Cube (or Number 7–12 Cube) and moving their Pawns forward that number of spaces.
- After each turn, each student should enter on the score sheet the number he or she landed on during that turn.

Concluding Play

- The first student to make it to 100 is the "first winner." The remaining students should continue playing until all players have reached 100.
- When all players have reached 100, each student should count the number of entries he or she made on the score sheet to determine how many spaces he or she landed on during game play. The students should then determine who landed on the most squares and who landed on the fewest squares in their progression to 100.

Questions to Ask

While the students are playing, ask questions to focus their attention on the numbers.

- **What number are you on?**
- **What number do you think you will be on after you move?**

When all students have reached 100 and counted the number of squares they landed on, you might ask questions such as the following:

- **Did the person who landed on the most squares reach 100 first?**
- **Did the person who landed on the fewest squares reach 100 first?**
- **Is there a relationship between landing on many or few squares and getting to 100 first?**

Encourage students to recognize that rolling big numbers will enable them to get to 100 faster with fewer steps along the way.