

First Grade

Math

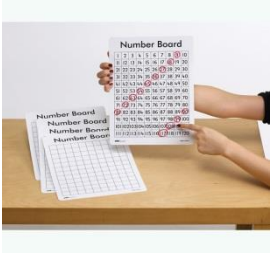


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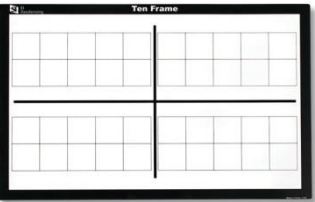
Kit Contents: What's in the Math Toolkit?



Number Playing Cards (#1-13 with shapes)



Number Board (#1-120 and Blank with wipe-on/ wipe-off surface)



Ten Frames (Double with wipe on/wipe off surface)



Rekenrek



Number Line (0-30 with wipe on/wipe off surface)



Double-sided Magnetic Counters (20)



Dice (3)



Dry Erase Marker (1)



Using Basic Primary Number Cards students will:

- Compare numbers and tell which is more and which is less
- Read/identify numbers
- Order numbers
- Utilize images and groupings for visualizing numbers

Example activities/card games:

- "Make 10" and "Tens go Fish": students discover combinations of 10
- "Five in a Row": adding or subtracting two numbers to find a total
- Make fact families

Activity 1: Explore the cards. Place cards in a pile face down on the table. Each partner takes a card and both partners identify which number is greater. Each partner should make a pile of collected cards and continue taking turns picking up additional cards and naming the number that is picked. After collecting 5-10 cards, lay the cards out in order from least to greatest. Partners should read their ordered cards to each other and offer assistance as needed.

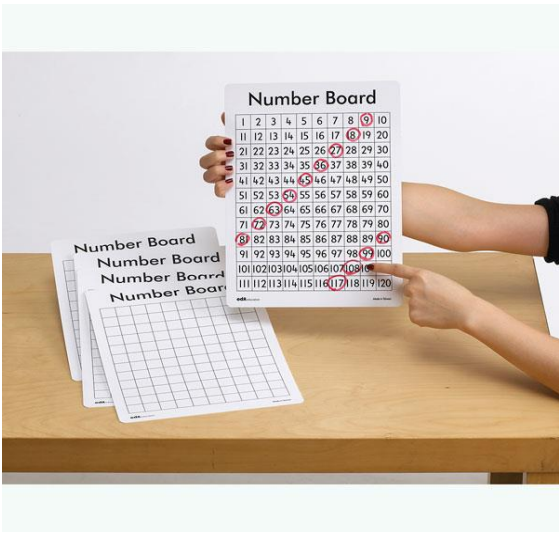
Activity 2: "Tens Go Fish": Remove the cards 10, 11, 12, and 13 from the deck and set aside. Each player is dealt 6 cards. Each player looks for pairs from his or her cards that make 10. Players put down the pairs of cards that equal 10, and then draw new cards to replace them from the deck. Players take turns asking each other for a card that will make 10 with a card in their own hands. (If Player 1 has a 3 card, she or he would ask Player 2 for a 7 card). If a player gets the card, he or she puts the pair down and picks a new card from the deck. If a player does not get the card, the player must "Go fish" and pick a new card from the deck. If the new card from the deck makes 10 with a card in the player's hand, he or she puts the pair of cards down and takes another card. A player's turn is over when no more pairs can be made that make 10.

Later in the year: Remove the cards from the deck that are 11 and higher and have players make combinations that equal 10 or 11 and so on. Also, have players make combinations that equal a specific number using more than two cards at a time.

Activity 3: Place cards face down on the table. Use the double-sided counters to decide which player will be red and which player will be yellow. Player 1 picks up 2 cards from the deck, and decides whether to add the two cards or subtract them to make a total that is on the Five-in-a-Row game board. If Player 1 is able to make a total that is on the game-board, s/he marks that space on the game board with a counter. The first player to cover 5 totals in a row ends the game.

Strategy: Use the shapes on the cards to help with adding and subtracting. Use the following language to support this:

- to add, count all the shapes on both cards
- to subtract, start with the card that is more, draw as many circles on the wipe off board as the number indicated. Then draw an x through the circles equal to the number indicated on the lesser card. The difference is equal to the amount of circles that have not been crossed out. For example, if the player picks an 11 card and a 5 card, the player would draw 11 circles on the wipe off board and cross off 5 circles. The amount they would cross off on the 5-in-a-row game-board would be 6 because, $11-5=6$. It is great practice to write the equation that goes with the operation. In the beginning, the adult can write and say the equation $11-5=6$. Hopefully, after lots of modeling, the child will be able to write and say the equations.



Using Wipe-on/Wipe-off Number Boards students will:

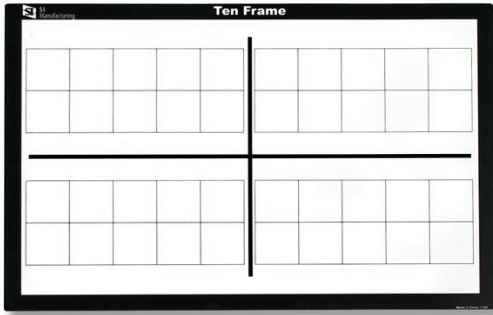
- Identify and write numbers to 120
- Find a patterns
- Utilize a reusable tool for adding and subtracting
- Gain an understanding of basic place value

Example activities:

- Cover and name the missing number
- "Guess my Number": focusing on 1 more/1 less; 2 more/2 less; 10 more/10 less
- Practice counting by 2's, 5's and 10's
- Write numbers on the reverse, blank side of chart

- **Activity 1:** Explore the chart. Talk with your child about what you notice and what number and patterns she/he notices. (Example conversation: Partner 1 says, "I notice that in the first column, the second number is 1 all the way from the top to the bottom. I also notice that the first numbers from the second row down to the bottom row counts forward from 1-2-3-4-5-6- etc." Then Partner 1 asks, "What do you notice?" Accept their observations and continue to draw their attention to the various patterns on the Number Board. Continue in this fashion with other observations, "I notice that when you start at the 3 in the top row and go down all the numbers have a 3 as the second number. I notice that when you start at 31 on the side, all the numbers going across in that row after the 31 start with a 3." After each observation ask: "What do you notice?")
- **Activity 2:** Start by working only with numbers 1-10. When your child is confident with these numbers 1-10, move to working only with numbers 1-20. Continue in this fashion until your child is confident naming all numbers 1-120. To play "Guess my Numbers" place 3, 4 or 5 pennies in different locations on the Number Board to cover numbers. Ask your child to guess what number is under each penny. In the beginning, offer suggestions if necessary to show your child that you can start at 1 and count forward to figure out the missing numbers. Or, show them that they may be able to count on from the number prior the covered number in order to figure out the mystery number. All strategies should be welcomed as long as your child is gradually moving toward understanding where numbers are located with increased speed, accuracy and independence.
- **Activity 3:** Together with your child, count by 10s (tens) to 100. Have your child cross off each number as you say each number together (10-20-30-40-50-60-70-80-90-100). Once s/he is able to count by 10s to 100, repeat the same activity for counting by 5s to 50 (5-10-15-20-25-30-35-40-45-50). Once your child is able to count by 5's to 50, repeat this same activity for counting by 2's to 20. Continue to higher numbers once your child is counting confidently and fluently.
- **Activity 4:** Use the blank side of the Number Board to fill in sections and/or the entire thing, depending on the student's level. This will give the student practice with writing numbers correctly in sequential order.

Using Wipe-on/Wipe-off Ten Frames students will:



- Learn to talk about different number combinations for building number sense and mental math automaticity
- Add and subtract numbers 0-20
- Identify groups of ten quickly with visual imagery

Example activities/Number Talks conversation:

- Use counters to see and describe: "How many?" "How do you see them?" "How many different equations can represent that image?"

Activity 1: For the following activity, it is very important to only show your amount for a short, quick glance. For example, show your number while counting to 5 in your mind. Then immediately put down your 10 frame. This allows children to make a quick "snapshot" in their minds. If they need to see the configuration again, show it again for 5 seconds. You can repeat this until they have accurately replicated your configuration, using only one Ten Frame.

The adult makes a configuration of an amount on the Ten Frame. Explain that you are going to show what you made and that her/his first job is to make the same as you did. Then the second job is to tell you how many there are all-together and how s/he knows this.

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The above is an example of one configuration an adult could make that equals 5. The child would make the same on her/his own double Tens Frame (in the top Tens Frame). The child would then tell how many and how they know. Initially children count each dot. As they are able to see chunks and count on, they may say something like, "I saw 3 and then 2 more. I start on 3 and count up 2, so 3, 4, 5." They might say, "I saw 2 and 2 and 1." You constantly bring the combinations back to chunks that equal the total, example the adult would say, "You saw $2+2+1$ and that equals, what? Yes, it's 5!" With time and practice, they will be able recognize a configuration and know the total without counting. You continue working with 5 until the child is able to name the parts and know the total. Then you move on to 6, 7 and so on. Continue practicing each number and moving ahead to the next number after the child demonstrates a very solid understanding of the parts that make up the number.

Once the child has mastered amounts to 10, you can move to amounts that use both Ten Frames. When you move to this, you always fill one Ten Frame and add some to the second Ten Frame, so that the child has a visual representation and reference for tens and ones. For example, 13 is $10+3$. This lays a good foundation for learning place value.

Activity 2: On a separate piece of paper or dry erase board, write an equation. (ex. $4+5=$ __) Help the child use the Ten Frame to add the numbers. S/he can fill in 4 spaces and then 5 spaces and count the total. For subtraction, remind her/him to always start with the larger number. Fill in that many spaces and cross out the amount indicated by the smaller number.

Using Rekenreks students will:

- Reason about numbers
- Subitize (know a total without counting)
- Build fluency
- Compute using number relationships
- Use as a tool for adding and subtracting
- Count/chunk by 5's using different colored beads on top and bottom

Example activity:

- Use different color beads to see and describe: "How many?" "How do you see them?" "How many different equations can represent that image?"

Activities:

Using *Rek-en-reks* builds a child's ability to mentally manipulate numbers, similarly to observing a dice, seeing the 6 dot configuration of three dots in one line and 3 dots in a second line, and knowing that there are 6 dots in all. You know the total "in a snap" without having to count individual dots. This is the meaning of the word "subitize". Encouraging children to think about numbers in their head strengthens their skills as a mathematician. You can use *Rek-en-reks* to do this.

- Start with 5. Move all the beads to the left. Move 5 beads to the right and say, "You do what I did and then tell me how many there are. What's the total and how do you know?"

Often a child will count each bead and say, "I know because I counted them." Counting is a strategy for figuring out how many are there.

- Next, break the number into parts. First move all the beads back to the left. Then move 2 beads to the right on the top row and 3 beads to the right on the bottom row. Again, say "You make the same and then tell me how many are there. What's the total and how do you know?"

The child may tell you, "I know because I counted," or, "I saw 4 and 1 more is 5."

- Next, push all the beads to the left, but this time move 4 to the right on the top and 1 to the right on the bottom and say, "You make the same and then tell me how many are there. What's the total and how do you know?"

Again, you may hear, "...because I counted" or "because I remembered the last was 4+1 and this is the same." All answers are correct. You want the child to see **chunks** which will move her/him forward from counting each bead individually. Additionally, you want to encourage thinking about the previous configurations. If 5 is too hard for now, move back to a total of 4. If the child is telling you that s/he knows the total in a snap with explanations such as, "I know that 4 and 1 make 5," "I know that 2 and 3 make 5," "I know that 3 and 2 make 5." "I know that if you have all one color in one row that it is 5." Then, they are ready to move to 6. I typically make that leap by moving all the beads to the right and moving 6 in one row to the left. A child ready for 6 will often say, "I know this is 6 because it is 5 and 1 more which is 6 or all of one color and one of the other color is 6."

Using *Rek-en-reks* is all about the conversations that you can have about different ways to make a total. We do not write equations. We just talk about the discoveries.

Using Wipe-on/Wipe-off Number Lines students will:

- Use as a tool for adding and subtracting from 0-30
- Gain confidence with counting on as a math strategy
- Master one-to-one correspondence when counting
- Discover number ranges



Example activities:

- Cover and name the missing number
- "Guess my Number": focusing on 1 more, 1 less; 2 more, 2 less; 10 more, 10 less
- Practice counting by 2's, 5's and 10's

Activity 1: Explore the number line together. Say the numbers in order from least to greatest. Say the numbers together from greatest to least. Play *What Is the Missing Number?*

- Use a penny and cover a number. Ask the child to figure out what the covered number is. Help him/her use the strategy of starting at 0 and counting forward to figure out the number's name. As the skills and confidence progress, cover 2 numbers and have him/her figure out *What Are the Missing Numbers?*

Activity 2: When the child is able to name all the numbers from 1-20 and can name the missing number/s in a snap, play *Guess My Number*.

- First you say, "My number is 2 more than 3. *Guess My Number?*" Have them child use a dry erase marker. Start at 3 and use the marker to circle that number. Starting at the circle, draw an arching arrow to the number 4 and count "1" as you draw. Keeping the marker on the page, draw an arching arrow from 4 to 5 and count "2". Then you can say and have the child explain back to you, "2 more than 3 is 5".
- Now let the child give you a number. This allows him/her to see you model figuring out the number using the dry marker and the number line. This also allows the child to hear the language that can accompany a *Guess My Number* exercise e.g. "2 more than 3 is 5". If 2 is difficult, have the child start with 1 more. Increase the amount as you continue.

Activity 3: Once the child has mastered "more than" you can move to "less than" with *Guess My Number*. For example, "What is 2 less than 7?"

- Utilize the same procedure, have them circle the number 7, draw an arching arrow back to 6 and say 1, draw an arching arrow to 5 and say 2. "2 less than 7 is 5". Keep practicing "less than" until the child is very comfortable and easily can identify "less than" a number. After "less than" has been mastered, you can play *Guess My Number*, with more than and less than.
- Switch it up by one time asking a "more than" *Guess My Number* and next time a "less than" *Guess My Number*

Activity 4: The number line is an excellent tool for children to use to add and subtract. You can write a simple equation on the wipe-off board and then demonstrate how to add the numbers using the number line.

- First practice addition. Use the following language to support efficiency, "Circle the larger number and jump forward the smaller number". For example, for $5+4$, circle the 5, make an arching arrow to 6 and count 1, make an arching arrow to 7 and count 2, make an arching arrow to 8 and count 3, make an arching arrow to 9 and count 4. Write the answer to the equation.
- For subtraction say, "Circle the larger number and jump back to the smaller number".
- Use the number line to practice counting by 5's, pointing to the numbers as you count. Same for counting by 2s.

Using Magnetic Counters students will:

- Practice counting amounts accurately
- Use as a tool for adding and subtracting
- Use as pieces for Ten Frames, Number Board and Number Line (see above)



Example activities/games:

- “On and Off”: Counting how many are on and off a sheet of paper and creating an equation
- “Counters in a Cup”: Identifying how many pieces are missing when some are covered up
- Magnetic counting on a refrigerator

Helping a child count efficiently is very important. Efficient counting ensures accuracy. We teach our students to line their counters in a line and then move each counter to the right as they count that counter. Move the first counter to the right and say “1”, move the second counter to the right and say “2”, move the third counter to the right and say “3” etc.

Activity 1: Take a small handful of counters (5 or 6 counters) and ask the child to put them in a line and count them. When s/he is done counting ask, “How many counters are there?” If the child is able to answer “5” move onto larger amounts. If s/he needs to recount the amount, try 4. If s/he is able to count accurately to 5 as well as tell you how many there are, move to 6. If the child is able to count easily and accurately, use amounts to 10, 20 and so on.

Activity 2: Repeat activity 1 and add the task of writing the amount on the dry marker board.

Note: After each use, keep the counters in a single stack to prevent losing them.



Using Dice (or dot cubes) students will:

- Practice counting amounts accurately using dot configurations as visual imagery
- Use as a tool for adding and subtracting
- Use for creating numbers when playing games and activities with: Ten Frames, Number Board and Number Line (see above)

Example activities:

- “Roll and Record” with addition, subtraction and doubles facts
- Take turns and count on from the total
- Make fast number combinations using dot configurations

Activity 1: Counting on is a foundational skill that helps young mathematicians calculate more efficiently. The words we use are, “Take the bigger number, put it in your head, and then count on the smaller number”. For example, $5+3=$ __ “Put the 5 in your head and then count 3 more 6-7-8 . . .”

Dice provide a visual model for this very complicated process. Have the child roll two dice. Say, “Put the bigger number in their head and then count on.” Point to the larger number and say, “ There are 5 dots here.” Count the 5 dots together. “There are 3 dots here” Count the dots together. Then say, “The larger number is 5, so we need to put that in our head and we need to count on 3 more” Touch the 5 die and say, “5” and then touch the first dot on the 3 die and say, “6”. Then touch the second dot on the 3 die and say, “7” and touch the 3rd dot on the 3 die and say, “8”.

***Before doing dice activities, an important checking point is to have the child roll 2 dice and you point to one die and ask, “How many dots are here?” Then point to the second die and ask, “How many dots are here and which die has more?” Asking these questions will help you know if the child can count the amounts accurately and if s/he knows which number is more. If s/he does not know these quickly, practice counting and the number line more.

Activity 2: Use the accompanying Roll and Record Sheet

- Roll and Record-Addition -Have the child roll 2 dice, make an equation and then calculate the total. Record total on Roll and Record Sheet.
- Roll and Record-Subtraction-Have the child roll 2 dice, make an equation and then calculate the difference. Record the difference on the Roll and Record Sheet.

Using Dry Erase markers students will:



- Practice writing digits correctly and minimize reversals
- Use for writing on all Wipe-on/Wipe-off surfaces (see previous tools/activities)

Activity 3:

Accurately writing numbers takes practice. Children often shut down, because this task can be so challenging. Some fun practice can really help them gain confidence and move forward.

Sitting side-by-side, model drawing a number. Draw the number large on the wipe off board. Have the child draw the same number next to yours. If this is difficult, model drawing the number and then make a dot-to-dot number next to your number and make an "x" where s/he should start. Have him/her trace the dot-to-dot number.

Another way to offer support is to gently put your hand over his/her hand while making the number. This will help guide and steer the movement path needed to accurately make the number.

Note: Always remember to keep the cap on the marker when it is not being used, so it does not dry out. Also, remember to wipe off all wipe-on/wipe-off surfaces after each use so that the surface does not stain.