Name _____

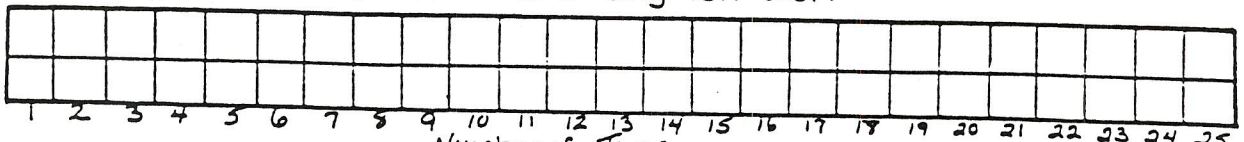
Guessing Jar - Making Fair Shares

Today, our jar is keeping us guessing about _____.

My estimate is _____.

1. Fair share the objects in the jar with 2 people (you and a friend).
   How many twos? _____ How many left over? _____

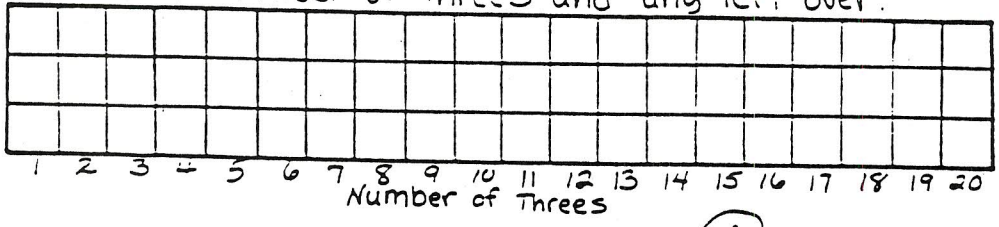
Color in the number of twos and any left over.

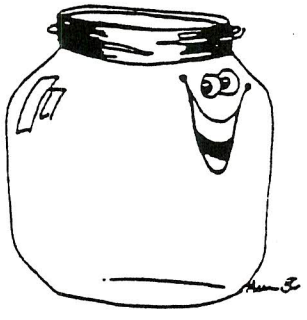


- How many all together? _____. AHA! (____ x 2) + ____ = _____

2. Fair share the objects in the jar with 3 people (you and 2 friends).
   How many threes? _____ How many left over? _____

Color in the number of threes and any left over.

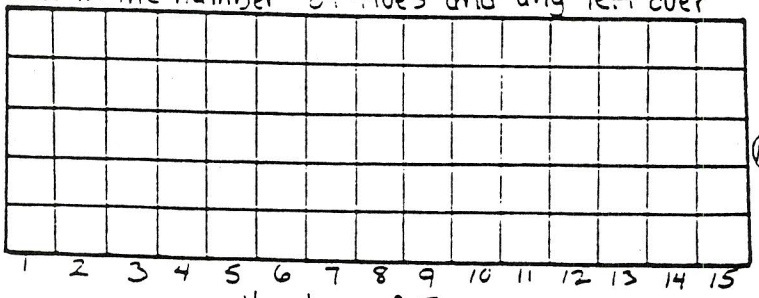




- How many all together? _____. AHA (____ x 3) + ____ = _____

3. Fair share the objects in the jar with 5 people (you and 4 friends).
   How many fives? _____ How many left over? _____

Color in the number of fives and any left over

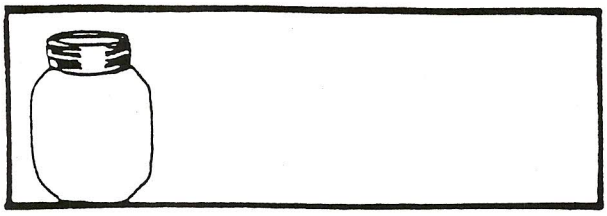


- How many all together? _____

AHA (____ x 5) + ____ = ____

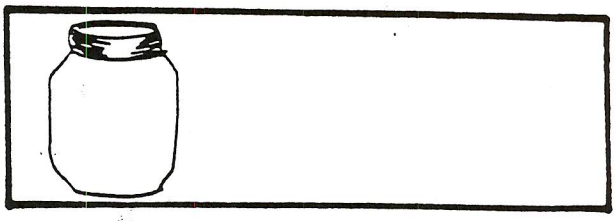
More Guessing Jars

Name _____



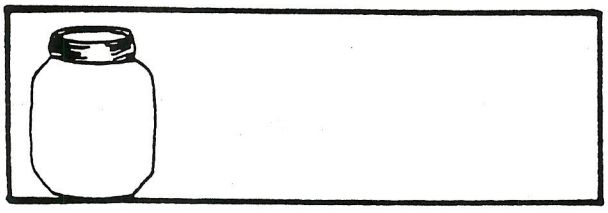
Guess: Total:

Tens	Ones



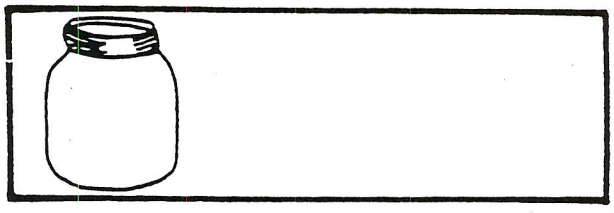
Guess: Total:

Tens	Ones



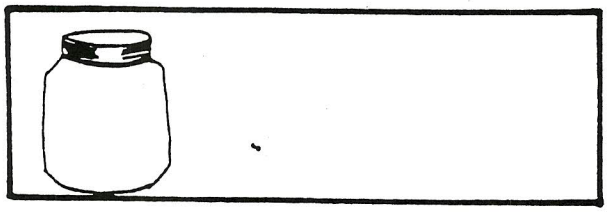
Guess: Total:

Tens	Ones



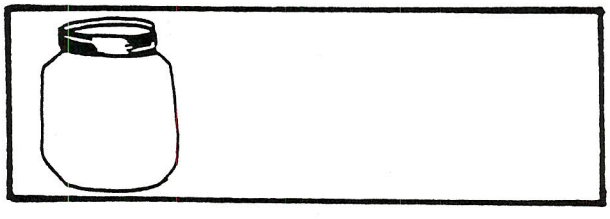
Guess: Total:

Tens	Ones



Guess: Total:

Tens	Ones



Guess: Total:

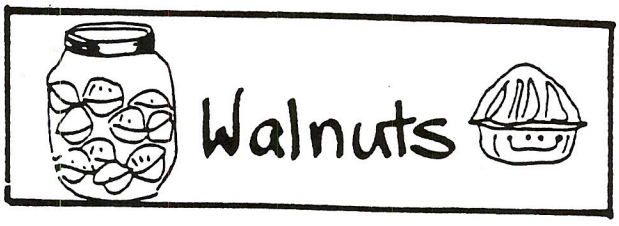
Tens	Ones

Guessing Jars

Name _____

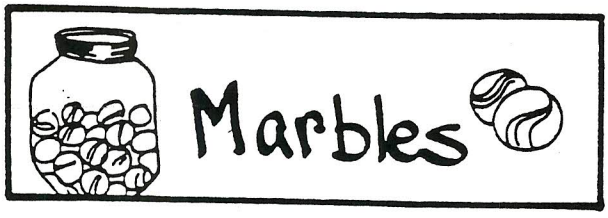
Guess: Total:

Tens	Ones



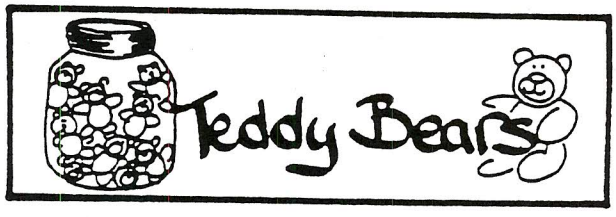
Guess: Total:

Tens	Ones



Guess: Total:

Tens	Ones

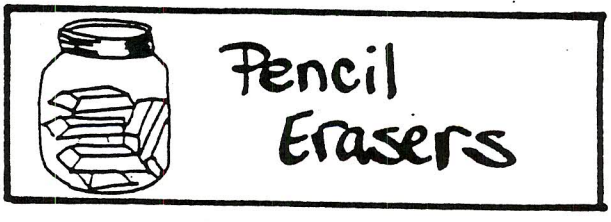


Guess: Total:

Tens	Ones

Guess: Total:

Tens	Ones



Guess: Total:

Tens	Ones

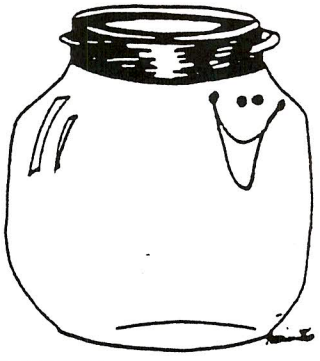
Guessing Jar

Name _____

Today, our jar is keeping us guessing about _____.

My guess is _____.

This is a picture of the guessing jar and the _____ inside.



Make a record:

Tens	Ones

There were _____ tens and _____ ones.

All together there are _____.

My guess is _____ more than we counted

or _____ less than we counted.

The number we counted is odd or even.
(circle one)

The Jar That Likes to Keep You Guessing

I. Topic Area
Estimation and number concept.

II. Introductory Statement
Student will use a jar of small objects to build their skills in estimation, counting strategies and place value.

III. Math Skills
a. Estimating
b. Counting
c. Place value
d. Grouping
e. Problem solving
f. Graphing

Science Processes
a. Predicting
b. Collecting data
c. Comparing
d. Generalizing
e. Applying information

IV. Materials
4–6 small Mason jars filled with jelly beans, walnuts, marbles, Teddy Bear counters, spools of thread, and pencil erasers (or similar objects).

V. Key Question
How many_____are in the jar?

VI. Background Information
1. Estimating is a skill each of us needs in order to function successfully. As adults we often use it without conscious effort. Our ability to estimate well improves with experience. Even as adults, we are uncomfortable and inaccurate when estimating very large or very small numbers. For example, can you picture a billion of something or describe a millionth of something?
2. To encourage youngsters to "guess", ask if they can estimate within 5 or 10 of the correct number rather than asking for the exact number.
3. This activity may be adapted to any grade level simply by selecting a range of numbers appropriate to that grade level. The process of grouping by two's, three's, etc. may be related to a number of concepts—addition, multiplication, place value, fair shares, and other number bases.

VII. Management Suggestions
1. For convenience and safety, keep the Guessing Jar at school. Have the youngsters bring from home objects to count in Ziplock baggies and then transfer them to the Guessing Jar.
2. Baby food jars may be substituted for small Mason jars.

VIII. Procedure
1. Begin by collecting a variety of small objects to be placed in the Guessing Jar. Duplicate the "home letter" and send the request home with each student. When the child returns with his contribution, transfer the objects to the "Guessing Jar."
2. Show the students the filled "Guessing Jar." Have the students estimate the number of objects in the jar while you record their estimates on the overhead, chalkboard, or large chart paper.
3. After 10-15 estimates have been recorded for all to see, ask very specific and creative questions about their estimates. For example: Does anyone see a number greater than 29? Is there a number with a 3 in the tens place? a 5 in the ones place? an odd number? and so forth. The kinds of questions asked will be determined by the appropriateness for the grade level.
4. Students may use the "Guessing Jar" recording pages to make a record of the counting methods used to count the objects in the jar.
5. On the first activity page, the student identifies the objects by naming them and then estimates the total number.
6. Draw a picture or sketch of the Guessing Jar.
7. The teacher pours out the contents of the Jar on the overhead or table nearby and leads the students in grouping the items by tens. You may wish to place each goup of ten objects into a paper cup. Then cout and record the number of tens and the number of ones. Discuss what happens if you reverse the number of tens and the number of ones.
8. Keep a daily record that shows a picture of the objects and the total number so that students can refer to past experience in making future estimates.
9. The second and third activity pages may be used to record estimates and place value counting methods for several different small jars of objects. One page is formatted with selected objects. The other is open-ended to include your choice of objects. Students work in small groups and record their estimates and then group by tens and ones as modeled by the teacher. Record in the appropriate place and exchange jars with another group. Continue until all jars have completed the rounds.
10. The fourth activity page allows youngsters to use the Guessing Jars to make fair shares. Students begin by identifying and naming the objects in the jar and recording their estimates of the total number.
11. Fair share the objects in the jar with two people (you and a friend). Record how many two's and how many left over. Then shade or color in the number of objects by two's in the grid. How many all together? Translate this information into mathematical language by filling in the equation: (_____ x 2) + _____ = _____.
12. Repeat a similar procedure for fair shares with three people, and with 5 people.

IX. Discussion Questions
Discussion questions of a specific nature have been included in the above described procedures. More general types of questions may be included in further discussion.
1. If the Guessing Jar is filled with objects that are smaller than the objects used today, will my estimate be higher or lower?
2. How does shape affect the number of objects in a jar?
3. Will a jar hold more marbles or more crayons?
4. What kinds of objects fill more space than others?
5. Can I fill *all* the space in a jar with "countable" objects?

X. Extension
1. When students become very confident, you may wish to combine more than one kind of item in the jar. For example, large marbles and small marbles.
2. At holidays, you may wish to fill a Jar with individually wrapped holiday candy for estimating and distributing for a treat.

Dear Parents,

This is a picture of the "jar that keeps us guessing." Please help your child find a number of small items that will fit in the jar (0-25 in the fall, 10-50 in the winter, 10-100 in the spring). Then, count the items with your child and send them to school in a plastic zip lock baggy.

Instruct your child not to tell anyone how many items are in the baggy.... not even their best friend! The class will transfer your contribution to the "jar" and will estimate the number of items in the jar. We will group them and count them in a variety of ways. Thank you for your help.

Your child's teacher,

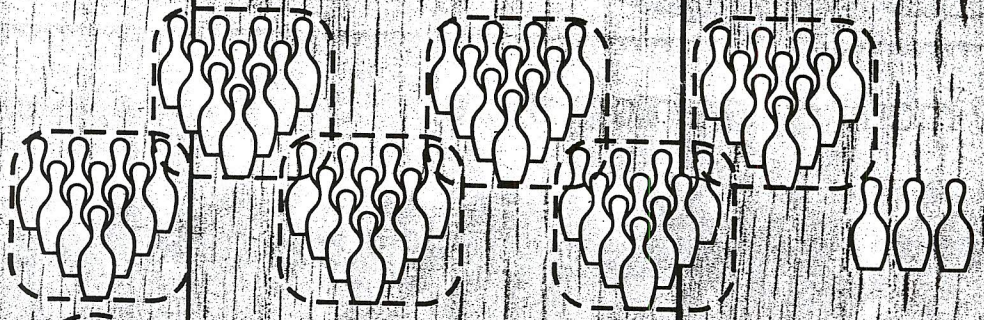
Sample objects might include:

marbles	erasers	wooden blocks	pasta	jelly beans
pennies	pebbles	tiny toys	lima beans	sugar cubes
rice	BB's	sea shells	coffee beans	jelly bellies
beans	M+M's	pom poms	pinto beans	nuts, bolts
macaroni	buttons	gum balls	walnuts	washers
balls	cereals	candies	plastic beads	filberts
jacks	popcorn	small tiles	hazel nuts	raisins
peanuts	dice	styrofoam beads	game pieces	gummy bears

Try This

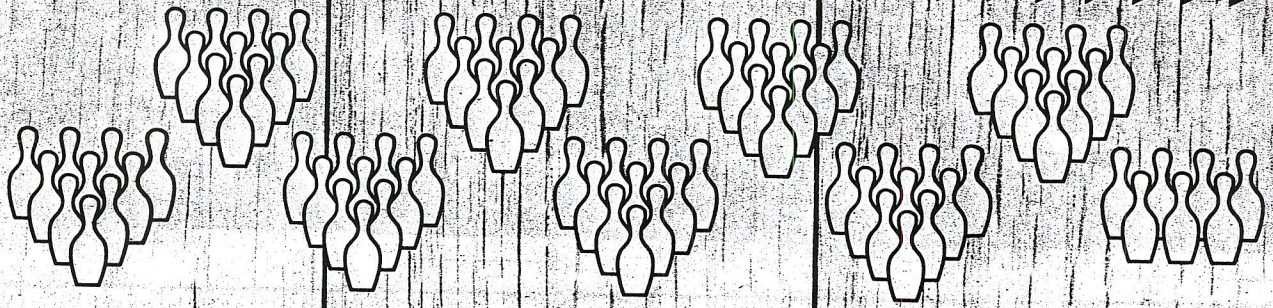
Ring the best estimate.
Ring groups of 10 to check.

1.



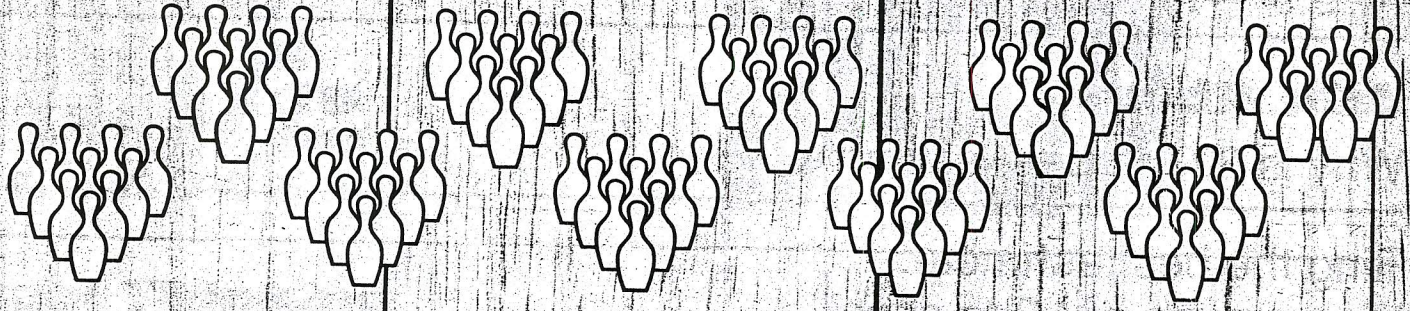
60 80 90

2.



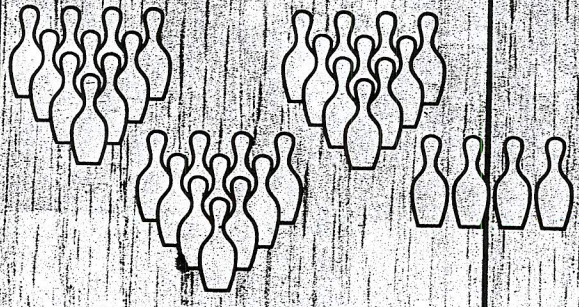
50 90 100

3.



60 80 100

4.



10 30 50

Name _____

Problem Solving
Strategy • Use Estimation

Understand | Plan | Solve | Look Back

About how many children are there?

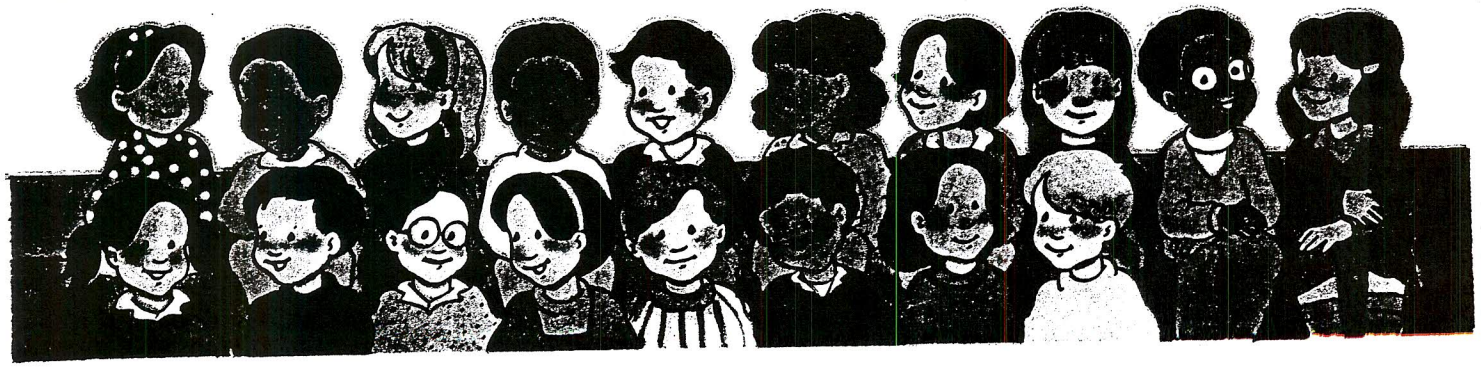
10 (30) 50

Ring groups of 10 to check your estimate.

Talk About It

Why is 30 the best estimate?

Ring the best estimate.
Ring groups of 10 to check.



10 20 50

SOL 1.7

Estimating in the Garden

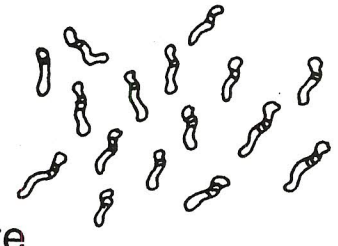
Estimate how many are in each group. Write your estimate. Then count the items in each group. Write the true number.

1.

Estimate _____

Number _____

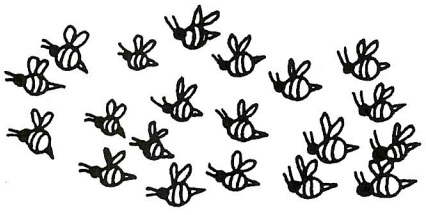
2.



Estimate _____

Number _____

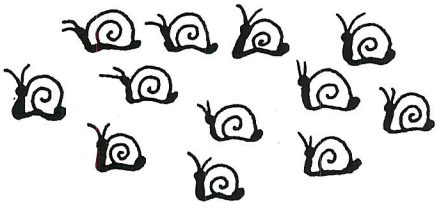
3.



Estimate _____

Number _____

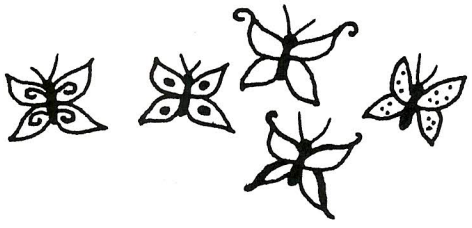
4.



Estimate _____

Number _____

5.



Estimate _____

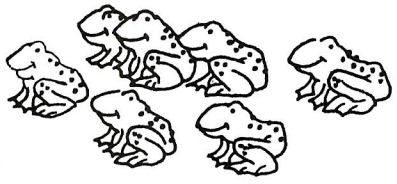
Number _____

6.

Estimate _____

Number _____

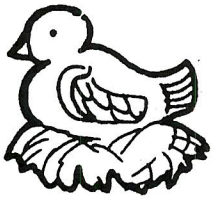
7.



Estimate _____

Number _____

8.



Estimate _____

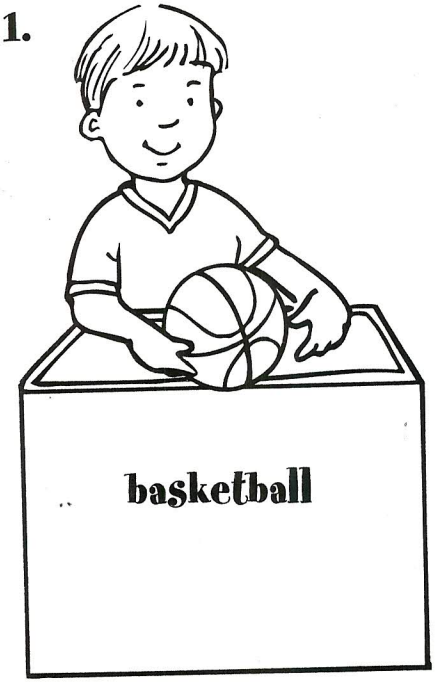
Number _____

How Many Balls and Books?

Name _____

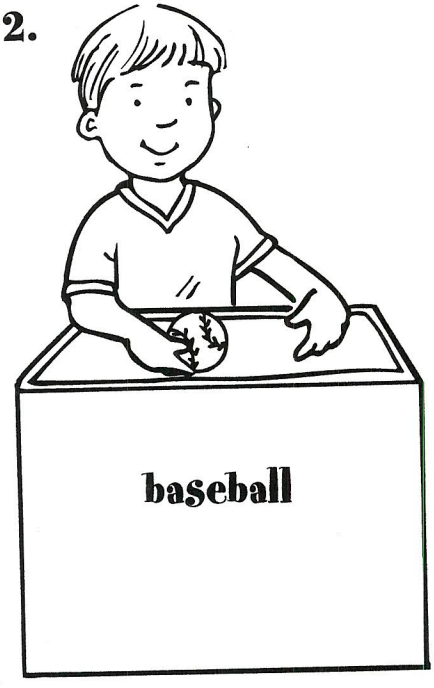
The children help Coach Brown put the balls away after recess.
Look at the ball each child is holding.
How many balls do you think will fill the box? Circle the number.

1.



2 12 50

2.



5 20 100

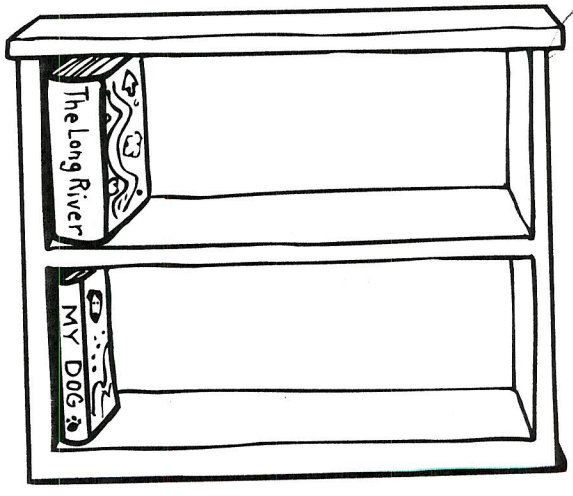
3.

4 30 90

The children help their teacher put away books.

4. How many big books do you think will fill the shelf? _____

5. How many small books do you think will fill the shelf? _____



Make reasonable estimates when comparing larger or smaller numbers

How Many Balls and Books?

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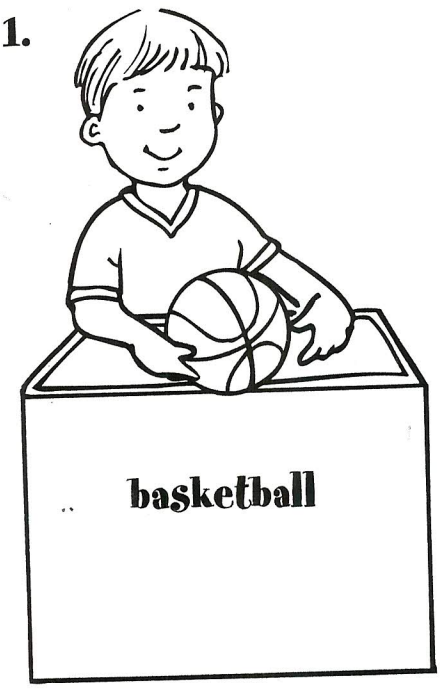
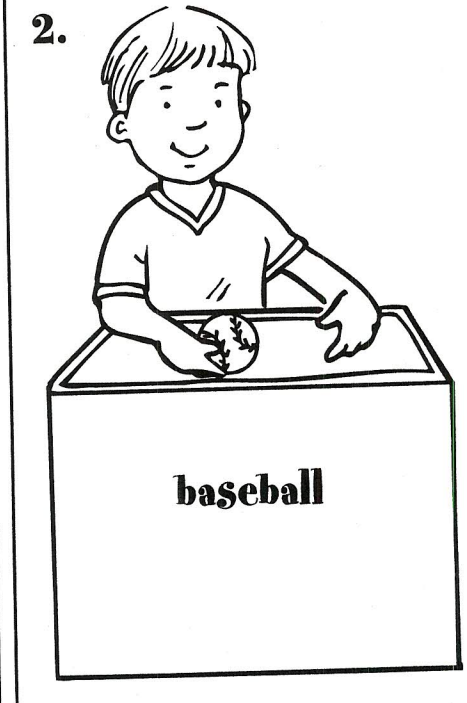
1.



2 12 50

2.



5 20 100

3.

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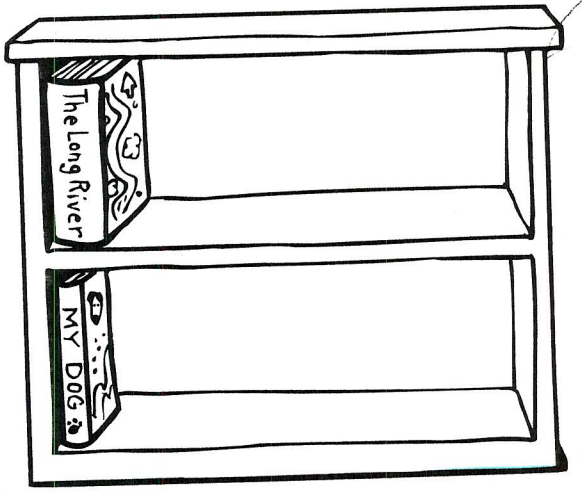


Make reasonable estimates when comparing larger or smaller numbers

More or Less?

Name _____

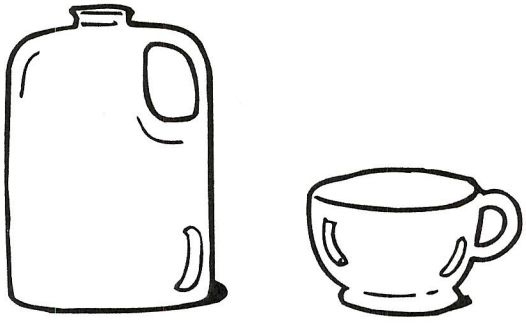
Estimate how many. Circle the best answer.

1. About how many marshmallows are in the bag?

less than 30

more than 30

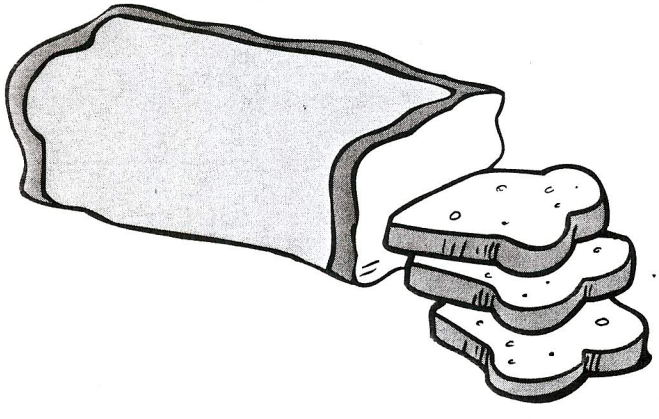
2. About how many cups of water will the jug hold?



less than 8

more than 8

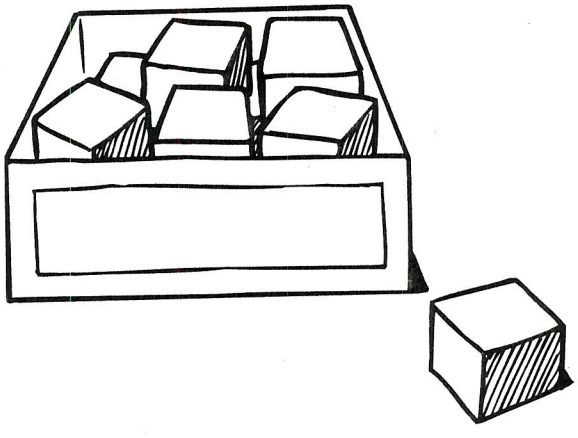
3. About how many slices of bread are in the loaf?



less than 9

more than 9

4. About how many blocks are in the box?



less than 20

more than 20

Make reasonable estimates when comparing larger or smaller numbers