

# Don't Get "Bugged" About Missing Numbers

## Summary

This activity will introduce students to the concept of missing numbers.

## Main Core Tie

Mathematics Grade 1

[Strand: OPERATIONS AND ALGEBRAIC THINKING \(1.OA\) Standard 1.OA.4](#)

## Additional Core Ties

Mathematics Grade 1

[Strand: MEASUREMENT AND DATA \(1.MD.\) Standard 1.MD.2](#)

Mathematics Grade 1

[Strand: MEASUREMENT AND DATA \(1.MD.\) Standard 1.MD.4](#)

## Materials

Construction paper ladybugs

Black dots

- *Are You a Ladybug?*

Math Journal

- [Lucky Ladybug](#) (pdf)

Symbol Soup

- [Shape Soup recipe paper](#) (pdf)

1-inch magnet strips

4 x 4 squares laminated construction paper

Soup pot/ladle

Paper soup bowls

- *Twizzlers™ Shapes and Patterns*

The Case of the Missing Number

Soup shapes from previous lesson or Pattern blocks

Math journals

- *Bertie Was a Watchdog*

Additional Resources

Books

- *Are You A Ladybug*

, by Judy Allen and Tudor Humphries; ISBN 0-7534-5603-6

- *Twizzlers™ Shapes and Patterns*

, by Jerry Pallotta; ISBN 0-439-34053-5

- *The Shape of Things*

, by Dayle Ann Dodds; 1-564202-698-1

- *The Grouchy Ladybug*

, by Eric Carle; 978-0064434508

- *Counting Crocodiles*

, by Jody Sierra and Will Hillenbrand; ISBN 0-15-200192-1

- *Bertie Was a Watchdog*

, by Rick Walton; ISBN 978-0744580181

## Background for Teachers

Children have learned that you can add and subtract numbers to find answers. What they don't know is that sometimes you have the answers but you don't have the question. In order to figure out the question, children need to have a good understanding of addition and subtraction. Addition is taking two groups, putting them together and counting. Subtraction is starting with one group, breaking that group into two groups, and then either counting one group or comparing the two groups to find the difference. If students have a good foundation in that knowledge, they may be ready to be introduced to missing numbers.

## Intended Learning Outcomes

5. Understand and use basic concepts and skills.
6. Communicate clearly in oral, artistic, written, and nonverbal form.

## Instructional Procedures

### Invitation to Learn

Begin by reading the book *Are You A Ladybug?* After reading the story discuss with the students what ladybugs are famous for. They are famous for their spots. Spots are possibly ladybugs, most prized possession because getting spots is the last stage of their development. Ask students if they have ever wondered if ladybugs could lose their spots. If they could, lose their spots, they would desperately want to have them replaced. Suggest that spots could be replaced but only if the ladybug knew how many were missing. Tell the students we are going to imagine some ladybugs have lost their spots and need our help to get them back. We will learn how to help ladybugs figure out how many spots they are missing.

### Instructional Procedures

To each group of students, pass out a container with black circles, ladybug spots, and a pre-made ladybug with two wings. Only one wing has spots on it, the other one is missing the spots. Tell the students that some poor little ladybugs have landed in our room and they have a problem.

Have the students look at the ladybug and see if they can tell what the problem is.

When they decide that the ladybug seems to be missing some spots tell them that they can help this ladybug get their spots back.

In order to do this they need to look under the wings of the ladybug. If they look very carefully they can see a number written on the ladybug's back. This number tells the total number of spots a ladybug has earned.

Tell students that they can use the spots and work as a team to figure out how many spots the ladybug is missing.

Walk around the room as the students are working and give guided questions where necessary.

Possible guided questions: What do you know about this ladybug? How many spots should the ladybug have all together? How many spots does the ladybug have that we can count?

What could you do after you count the number of spots you can see?

When the team has figured out the missing number of spots, they draw the ladybug in their math journal and explain how they helped the ladybug.

Have teams explain what they did to help the ladybug to the class.

Repeat with different ladybugs and challenge them to see if they can help the ladybug faster.

## Symbol Soup

### Invitation to Learn

Begin by reading *Twizzlers™ Shapes and Patterns* to the students.

### Instructional Procedures

Bring the class to the front of the room.

Tell students that today we are going to make soup, a special kind of soup: shape soup.

Ask the students what ingredients they think might be put in shape soup.

Brainstorm ingredients and draw them on the board.

Give students a Shape Soup recipe paper and have them create the many, varied and unusual ingredients that might make great soup.

Give them two minutes to draw eight shapes. They may color their shapes if they finish early.

Have them decide what they think their best ingredient is and circle it.

Give students a 4 x 4 piece of laminated paper and have them make and cut out the shape they circled. The shape needs to be as big as accurate as possible.

Add their shape ingredients to a soup pot and stir the soup. If you have magnetic white boards, give students a magnet strip and have them stick it to one side of their shape.

Explain the purpose of the shapes by doing a role-play.

Pick a group of students to be in the role-play and explain the role-play to them in the hall.

One of the students will be the teacher. The teacher will tell the group of role-players to line up. You are going to line up with them as a student, but when everyone is in line, you are going to say that you forgot something and have to go get it. You will ask whoever is standing in front and in back of you to save your place. Tell the students that if you ask them to save your place they should say yes but as soon as you get out of line they should move up and take your place.

Go back into the room and have the "teacher" go up to the front and tell the group to line up.

Line up with the students you picked to help.

Pretend you forgot something so you have to get out of line to get it.

Ask the students in front and behind of you to save your place.

Leave the line and go get the thing you forgot. When you return, act upset because your place is gone and you don't know where you were supposed to be.

Redo the role-play but this time when you leave, put something in your place like a chair or a book.

Explain that the chair, or book, represents you while you are gone, and when you get back you will take the object away and get back in place.

Leave to get what you forgot and come back happy because you can take your place back.

Explain that numbers need something to hold their place in line also. Any shape can be used to represent a number that is missing from the sentence.

Explain that the symbol soup is full of shapes that can represent a number.

Write any math sentence on the board. Have the students put their heads down and close their eyes.

While their eyes are closed, put a shape from the soup over any number.

Tell the students to put their heads up and figure out what number the shape is representing.

Lift the shape off the number to see if they were right.

Do many examples.

For a challenge, have students close their eyes while you write the whole sentence so they have to figure out the missing number.

## The Case of the Missing Number

### Invitation to Learn

Begin by reading *Bertie Was a Watchdog* to the students. Discuss what a burglar is.

### Instructional Procedures

Bring the class to the front of the room.

Write an addition sentence with a missing number on the board. Use a shape to represent the missing number.

Tell students that there is a burglar in the room. The burglar has stolen a number.

Tell students that when a number is stolen we need a number detective to find the stolen number.

If they can figure out which number has been stolen, and is now missing, they can solve the case of the missing number.

Tell students to use what they have learned to figure out what number is missing. (Start with the number they know and count up to the total.)

After someone solves a case ask him or her to explain how he or she solved it.

Explain that today half the class is going to be burglars and the other half is going to be number detectives.

Split the class in half.

Burglars need a white board, marker, eraser, and shapes (magnet shapes from soup or pattern blocks). Detectives need a detective notebook (math journal).

The detective half of the class will go to their office (their desks) and begin taking notes on the case (writing the date and explaining their job).

The burglars will go to their desk write an addition equation. After the equation is written, they will cover it with a shape. The number covered is the number they have stolen. (If you have struggling students you may want to give them some printed equations and have them copy the equation and cover one number.

After each burglar has an equation written with one number covered, the detectives are sent out. Each detective will take their journal to any burglar and try to solve the case of the missing number by writing the equation with a shape for the missing number.

Detectives figure out the missing number and write it in the shape.

Detectives tell their burglar what number they think has been stolen and the burglar must show them if they were right or wrong.

The detective then reports back to the office and writes down the case information. For example: if the case was solved the detective will write how they solved the case and caught the burglar. If the detective got the wrong number, then they write that they thought the missing number was "x" but it was really "y" so the burglar got away.

After a few cases, have the students switch roles so the detectives are now the burglars and the burglars are now the detectives.

## Extensions

- *Bertie the Watchdog*

could be used for a language arts lesson highlighting the different sounds for words with "ed" endings.

Read *The Grouchy Ladybug*. Make a floor mat clock out of a round, plastic tablecloth. Use Velcro so students can practice attaching numbers 1 -- 12. Make an hour and minute hand out of poster board. As you read the story, have students take turns making the time on the clock. You can also ask questions after the story is over. If the ladybug talked to the skunk at 11 o'clock and talked to the lobster an hour before that, show me what time the ladybug talked to the lobster. Give students cards with math symbols and words written on them and see if they can categorize them based on things they have in common.

## Family Connections

Make detective books to send home and challenge students to try and trick the family.

## Assessment Plan

Ladybug worksheet.

Math journals are a great assessment for diagnosis of understanding.

## Bibliography

### Research Basis

Armstrong, T. (1994). *Multiple Intelligences in the Classroom*. pp.65-85. Thousand Oaks, CA. Corwin Press

There should be materials in the classroom that provide opportunities for students to manipulate, build, or encounter other hands-on experiences.

Marzano, R.J., Pickering, D.J., & Pollock, J.E. (2001). *Classroom Instruction that Works*. Research and Theory Related to Cooperative Learning, pg. 85-88. Alexandria, VA. McRel

This book supports many different teaching methods that are successful in today's classroom. Cooperative learning, hands on activities, and multiple intelligences are among the topics covered in this book.

### Authors

[Utah LessonPlans](#)