Daily Math Puzzlers

Level A
Grades 2 - 4

Power Pack

Daily Math
Problem Solving

Created by Laura Candler

Teaching Resources

www.lauracandler.com
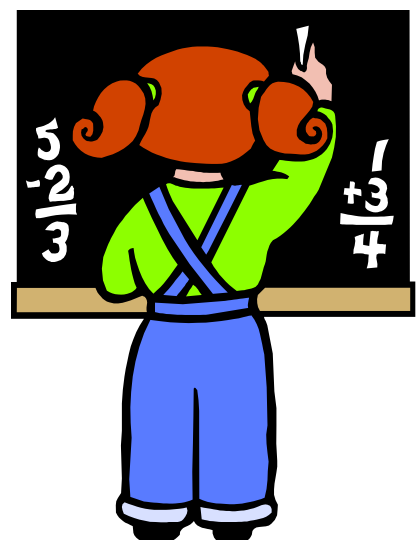
Acknowledgements

I would like to thank all the students and teachers listed below who field tested these Daily Math Puzzlers. Your thoughtful suggestions and ideas resulted in many improvements to the program. Your enthusiastic response was deeply appreciated!

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Daily Math Puzzlers

Contents and Introduction

Power Pack Contents

Math Problems or Tricky Puzzles?

Teaching kids of any age to solve math problems can be a daunting task, but introducing these skills to young children is especially challenging. Math content is relatively easy to teach, but teaching kids how to think through a problem in a logical manner is most definitely NOT easy! Yet why should we teach math at all if our students can't apply their knowledge to everyday life? Even young children need to be able to apply measurement concepts, understand money, tell time, and use math content to solve real life problems.

How do you help children make the transition from math computation to problem solving? Treat problems as tricky "brainteasers" and fun puzzles! These early problem-solving experiences are critical. When it comes to solving problems, attitude is more important than aptitude. Children who learn to view problems as fun puzzles will persist when they encounter difficulties, applying a variety of strategies in amazingly creative ways and building self confidence along the way.
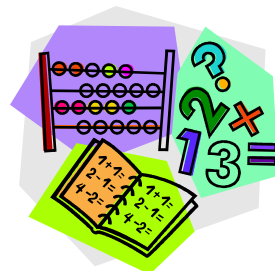
The Daily Math Puzzler program is a simple step-by-step approach designed to introduce children to problem solving in a fun, non-threatening way. Because the program takes just 10 to 15 minutes a day, it can easily become a regular part of your math instruction. Within days of starting the program, you and your students will look forward to starting each math lesson with a Daily Math Puzzler!

Puzzler Program Overview

Meeting NCTM Standards

When using Daily Math Puzzlers, you can feel confident you are meeting the National Council of Teachers of Mathematics (NCTM) standards for math instruction. In addition to addressing all of the content strands, this program targets the process standards such as problem solving, reasoning and proof, communication, and connections. One easy program meets all the standards!

Time Requirements

The Daily Math Puzzler program is designed to take 10 to 15 minutes per day. It's not necessary to adhere to the timeline below; some teachers may spread the introductory lessons out over 2 or 3 weeks, while others may skip them altogether. Not ready to start a daily problem-solving program? Check out the Alternative Strategies section on page 57 and you'll find many other uses for the Daily Math Puzzler worksheets. You can have students complete the activity pages in one lesson, use them for cooperative learning, or even send them home for homework.

Suggested Timeline
Week 1: Introduction to Calculator Skills
Weeks 2 & 3: Introduction to Problem Solving
Week 4: Start Daily Math Puzzler Program

Daily Math Puzzler Power Pack Levels

The Daily Math Puzzler program is leveled according to word problem difficulty rather than for specific grade levels. The entire series consists of materials suitable for students in 2nd grade through 7th grade, but the program has also been used with older students who have special needs. Across the levels, you'll find a wide variety of calculator lessons, enrichment games, problem-solving lessons, and student activity pages. For more information on how to utilize the various Daily Math Puzzler Power Pack levels, just turn the page and read on!

Daily Math Puzzler Program

Program Levels

The Daily Math Puzzler program is currently available in three different levels (A - C), and Level D will be available soon. Using a system of letters instead of grade levels gives you great flexibility when implementing the program. Each student activity page is coded with a letter and a number, so you always know which worksheet set you are currently using. Each Power Pack also comes with different calculator lessons, quizzes, enrichment games, and a unique problem-solving introduction. You can mix and match the lessons and activities to meet the needs of your students.

| Puzzler Pack	Grade Levels
Level A	**2, 3 and 4**
Level B	3, 4 and 5
Level C	4, 5, and 6
Level D*	5, 6 and 7

* Not yet available

How can you use the different levels to your advantage?

1. **Gradual Implementation** - When you first introduce the program, start with the lowest level that's appropriate for your grade level. For example, a 4th grade teacher may want to start with Level A for the first few weeks to ensure that students are successful as they learn the basics. Then move them up to Level B and later to Level C.

2. **Differentiation** - Even though the Daily Math Puzzler program was designed for whole class instruction, it can be used in small groups or stations to differentiate instruction. One method is to pair students with a buddy performing at the same instructional level and use the Math Buddy Chat and Math Team Talk cooperative learning strategies (pages 61 - 63). Within one class you might have several students on Level A, a few on Level C, and the majority on Level B. If your math class is structured around small group instruction and stations, you have even more options for using different levels. Have students complete the worksheets while at a station, and use small group instruction time to work with each level. See Math Stations for Middle Grades at www.lauracandler.com for more information on math stations.
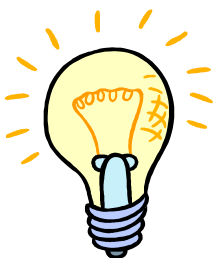
Introduction to Calculator Skills

Optional Activities to Teach or Review Basic Calculator Skills

Calculator Introduction

Calculator Instruction for Young Children

Should we teach young children to use a calculator before they master basic math facts? Opinions vary, but many teachers do introduce the calculator around second or third grade. Of course children still need instruction in basic math computation skills. However, introducing the calculator for problem solving can teach students to view the calculator as an important math tool. Sometimes kids feel that that a calculator is magic and that it can mysteriously solve problems, so this is a perfect time to show them that the "magic" comes from the user, not the calculator itself!

The lessons on the following pages provide a full introduction to the calculator. You can teach these skills in a few days or spread the lessons out over a week, working 15 to 20 minutes a day.

Notes:

- These lessons focus on basic calculator functions only. There are so many different versions of calculators that it would be impossible to address them all. The lessons do not address how to use a calculator to solve fraction problems since those directions are specific to certain calculators. You can certainly teach those functions if you wish.

- Many calculators come with teacher guides that contain an illustration of the calculator. Just do an online search for the specific calculator your class is using and you'll be amazed at the resources you'll find!

- Make a transparency of the calculator you are using or use an overhead projector version. Most calculator teacher guides come with an illustration that you can use to make this transparency. Better yet, check to see if your set of calculators comes with a teaching poster.

- Make a transparency of each page that you plan to use for student instruction. These visuals will help kids focus on your instruction.

Calculator Introduction

Lesson 1

Introduce the Basic Calculator Functions

- Start by distributing the calculators and displaying your overhead calculator or transparency. Point out the various number and function keys you'll be using in the lesson. Don't bother to introduce advanced calculator functions at this time, or you will overwhelm them with information they don't need for the basic problem-solving lessons.

- Place **Calculator Confusion** (page 10) on the overhead and cover the <u>Tricky Situation Hints</u> so students can't see them. Ask them to try to solve the problems at the top of the page. Have them write their answers on individual dry erase boards or paper. Walk around and observe them as they try to solve the problems. Tell them not to worry if they get confused—they can just write a "?" for the ones they can't figure out. Stop the activity if your students get too frustrated and tell them that this activity is designed to show how tricky the calculator can be! Reassure them that these problems will soon seem easy.

- Reveal the hints at the bottom of the page and discuss the issues that are raised by each situation. <u>Remind students that they need to work each problem at least 2 times to check for accuracy!</u>

- Display a transparency of the **Calculator Practice Problems** (page 11) and have the students do them one at a time. Have students display their answers on dry erase boards or paper so you can check for understanding. Provide additional practice problems as needed.

- If needed, use the **Calculator Key Challenge** (page 14) and/or the **Calculator Money Challenge** (page 16) to reinforce calculator skills. Some students just don't know what keys to press and in what order to press them. Duplicate copies of the activity sheet and make a transparency for the overhead. Each problem shows exactly how many keys will have to be pressed to solve the problem. Have students fill in the boxes with the individual keys they will press. Then allow them to enter those keys on their calculators to solve the problems.

Calculator Introduction

Lesson 2

Basic Calculator Quiz

Administer the **Calculator Quiz** (page 19) at the end of Lesson 1 or the next day. Use the Answer Key (page 20) to score the results. You may want to grade this one quite strictly if you plan to retest those who have difficulty. I generally count off points for missing commas, decimal points, dollar signs, etc. You will be surprised at the number of students who need a retest! Note: A blank Calculator Quiz template on page 23 has been provided so that you can create your own test if the ones provided don't meet the needs of your class.
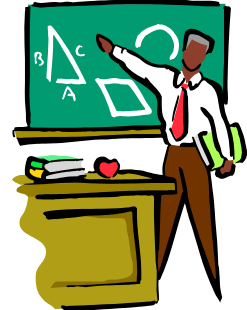
Feedback, Reteaching, and Enrichment

- Return the quizzes and review the answers as a class.
- Divide the class into two groups based on mastery level.
- **Enrichment** - Students who scored 90% or higher can be given one of the Enrichment activities described on page 24. The **Toy Shop Game** (pages 26 - 31) would be an ideal way to reinforce money skills.
- **Reteaching** - Students who scored below 90% correct need additional instruction from you. Provide more practice in a small group setting as needed. Children at this developmental level often need more help with using the calculator to add and subtract money. If you didn't use them previously, use the **Calculator Key Challenge** or **Money Challenge** (pages 14 - 17) to reinforce this skill. You can also create your own **Calculator Key Challenge** activities using the template on page 18. Just fill in the problems and decide how many boxes are needed to correctly input the numbers and symbols. Use white out to remove the remaining boxes before you duplicate the blackline master.

Administer Retest

Use the **Calculator Skills Retest** (page 21) to give students an opportunity to improve their original test scores. Even if some kids still have a little trouble, you can proceed with the problem-solving lessons and they will generally improve their calculator skills naturally over time.

Calculator Confusion

Tricky Situations

Can you solve these with your calculator?

1) 3,456 − 483 = ?
2) Subtract 29 from 45
3) 25¢ + 18¢ = ?
4) 85¢ + 43¢ = ?
5) $4.37 + $2.83 = ?
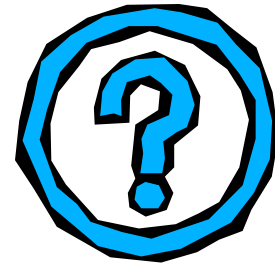
Tricky Situation Hints

- **Comma Use** − Commas are placed in long numbers to help us read them more easily. The calculator doesn't have a comma key, so when you write your answer, you'll have to add the commas.
     #1: 3,456 - 483 = 2973 or 2,973
- **Subtraction** − Be sure to enter the larger number first! When subtracting one number <u>from</u> another number, enter the larger number and then subtract the smaller number.   #2: 45 − 29 = 16
- **Entering Dollars and Cents** - When entering cents into the calculator, remember that amounts under $1 mean **0 dollars** and that amount of cents. So 25¢ really means 0.25 and should be entered as 0.25. Your answer will have a decimal point between the dollars and cents.
     #3: 25¢ + 18¢ = 0.25 + 0.18 = 0.43 which means 43¢
     #4: 85¢ + 43¢ = 0.85 + 0.43 = 1.28 which means $1.28
- **Zeroes in Money Answers** − The calculator doesn't show zeroes to the far right of the decimal point, but money answers are written with a place for the dimes and a place for the pennies.
     Examples: 7.2 = $7.20 <u>which is not the same as</u> 7.02 = $7.02

A

Name _____

Calculator Practice Problems

1. 48 - 29 = ____	6. 76 + 58
2. 56 x 4 	7. 9 + 14 + 45 + 8 = ____
3. 9,826 − 502 = _____	8. 29¢ + 43¢ = _____
4. $7.45 − $3.50 = _____	9. $4.23 + $1.37 = _____
5. $7.25 − $5.08 = _____	10. $6.00 + 3.10 = _____

A

Name _____

Calculator Practice Answers

1. $48 - 29 = $ **19**	6. $\begin{array}{r} 76 \\ + 58 \\ \hline \textbf{134} \end{array}$
2. $\begin{array}{r} 56 \\ \times\quad 4 \\ \hline \textbf{224} \end{array}$	7. $9 + 14 + 45 + 8 = $ **76**
3. $9,826 - 502 = $ **9,324**	8. $29¢ + 43¢ = $ **72¢ or $0.72**
4. $\$7.45 - \$3.50 = $ **$3.95**	9. $\$4.23 + \$1.37 = $ **$5.60**
5. $\$7.25 - \$5.08 = $ **$2.17**	10. $\$6.00 + 3.10 = $ **$9.10**

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Name _____
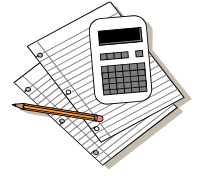
Calculator Practice Problems

1.	6.
2.	7.
3.	8.
4.	9.
5.	10.

Calculator Key Challenge

For each problem, try to figure out how many keys you will have to press, and what symbol you should use for each part of the problem. Fill in the blocks with the numbers and symbols needed. Then try your ideas with a real calculator to see if it works!

Example: 83 + 47 = | 8 | 3 | + | 4 | 7 | = |

1) 95 − 26 =

☐ ☐ ☐ ☐ ☐ ☐

2) 54 + 78 =

☐ ☐ ☐ ☐ ☐ ☐

3) 4 + 13 + 405 =

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

4) 948 + 630 =

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

5) 7,306 − 839 =

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

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Calculator Key Challenge Answers

For each problem, try to figure out how many keys you will have to press, and what symbol you should use for each part of the problem. Fill in the blocks with the numbers and symbols needed. Then try your ideas with a real calculator to see if it works!

Example: 83 + 47 = | 8 | 3 | + | 4 | 7 | = |

1) 95 − 26 = 69

| 9 | 5 | - | 2 | 6 | = |

2) 54 + 78 = 132

| 5 | 4 | + | 7 | 8 | = |

3) 4 + 13 + 405 = 422

| 4 | + | 1 | 3 | + | 4 | 0 | 5 | = |

4) 948 + 630 = 1,578

| 9 | 4 | 8 | + | 6 | 3 | 0 | = |

5) 7,306 − 839 = 6,467

| 7 | 3 | 0 | 6 | - | 8 | 3 | 9 | = |

A

Calculator Money Challenge

For each problem, enter the amounts as dollars and cents. Be sure to use a decimal point for each money amount! Fill in the blocks with the numbers and symbols needed. Then solve the problem with a calculator and write your answer on the line.

Example: 38¢ + $2.15 = _____ $2.53 _____

| 0 | . | 3 | 8 | + | 2 | . | 1 | 5 | = |

1) $5.08 + $6.29 = _____

| | | | | | | | | | |

2) 85¢ − 38¢ = _____

| | | | | | | | | | |

3) $3.74 + $9.46 = _____

| | | | | | | | | | |

4) $9.72 − $5.24 = _____

| | | | | | | | | | |

5) $7.18 + 52¢ = _____

| | | | | | | | | | |

Calculator Money Challenge Answers

For each problem, enter the amounts as dollars and cents. Be sure to use a decimal point for each money amount! Fill in the blocks with the numbers and symbols needed. Then solve the problem with a calculator and write your answer on the line.

Example: 38¢ + $2.15 = __$2.53__

| 0 | . | 3 | 8 | + | 2 | . | 1 | 5 | = |

1) $5.08 + $6.29 = __$11.37__

| 5 | . | 0 | 8 | + | 6 | . | 2 | 9 | = |

2) 85¢ − 38¢ = __$0.47 or 47¢__

| 0 | . | 8 | 5 | - | 0 | . | 3 | 8 | = |

3) $3.74 + $9.46 = __$13.20__

| 3 | . | 7 | 4 | + | 9 | . | 4 | 6 | = |

4) $9.72 − $5.24 = __$4.48__

| 9 | . | 7 | 2 | - | 5 | . | 2 | 4 | = |

5) $7.18 + 52¢ = __$7.70__

| 7 | . | 1 | 8 | + | 0 | . | 5 | 2 | = |

Calculator Key Challenge

For each problem, enter the amounts as dollars and cents. Be sure to use a decimal point for each money amount! Fill in the blocks with the numbers and symbols needed. Then solve the problem with a calculator and write your answer on the line.

Example: = _____

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

1) _____

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

2) _____

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

3) _____

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

4) _____

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

5) _____

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Name _____

Calculator Skills Quiz

1. 72 - 49 = ____	6. 92 + 38 _____
2. 48 x 7 _____	7. 7 + 35 + 18 + 9 = ____
3. 7,534 − 408 = _____	8. 13¢ + 72¢ = _____
4. $8.75 − $3.60 = _____	9. $2.45 + $1.35 = _____
5. $9.75 − $3.04 = _____	10. $5.00 + 4.80 = _____

A

Name _____

Calculator Skills Quiz Answers

1. 72 - 49 = **23**	6. 92 + 38 **130**
2. 48 x 7 **336**	7. 7 + 35 + 18 + 9 = **69**
3. 7,534 − 408 = **7,126**	8. 13¢ + 72¢ = **85¢ or $0.85**
4. $8.75 − $3.60 = **$5.15**	9. $2.45 + $1.35 = **$3.80**
5. $9.75 − $3.04 = **$6.71**	10. $5.00 + 4.80 = **$9.80**

A

Name _____

Calculator Skills Retest

1. 85 - 39 = _____	6. $\begin{array}{r} 78 \\ +\ \ 34 \\ \hline \end{array}$
2. $\begin{array}{r} 56 \\ \text{x}\ \ \ \ 3 \\ \hline \end{array}$	7. 4 + 63 + 35 + 8 = _____
3. 2,638 − 309 = _____	8. 43¢ + 22¢ = _____
4. $7.25 − $4.30 = _____	9. $4.75 + $3.75 = _____
5. $8.25 − $2.09 = _____	10. $7.00 + 3.40 = _____

A

Name _____

Calculator Skills Retest Answers

1.

$$85 - 39 = \underline{\mathbf{46}}$$

2.

$$\begin{array}{r} 56 \\ \times \quad 3 \\ \hline \mathbf{168} \end{array}$$

3.

$$2{,}638 - 309 = \underline{\mathbf{2{,}329}}$$

4.

$$\$7.25 - \$4.30 = \underline{\mathbf{\$2.95}}$$

5.

$$\$8.25 - \$2.09 = \underline{\mathbf{6.16}}$$

6.

$$\begin{array}{r} 78 \\ + \quad 34 \\ \hline \mathbf{112} \end{array}$$

7.

$$4 + 63 + 35 + 8 = \underline{\mathbf{110}}$$

8.

$$43¢ + 22¢ = \underline{\mathbf{\$0.65 \ or \ 65¢}}$$

9.

$$\$4.75 + \$3.75 = \underline{\mathbf{\$8.50}}$$

10.

$$\$7.00 + 3.40 = \underline{\mathbf{\$10.40}}$$

A

Name _____

Calculator Skills Quiz

1.	6.
2.	7.
3.	8.
4.	9.
5.	10.

Calculator Introduction

Enrichment Activities

Why Use Enrichment Activities?

- Students who have attained mastery of basic calculator skills can extend their understanding through higher level thinking and reasoning. It also keeps them from getting bored and disruptive!
- Providing enrichment activities motivates students to do their best on the first test so that they may participate in the activity.
- Dividing the class this way reduces the number of students in your "reteaching" group, allowing you more individual contact with them.
- Using enrichment activities allows you to differentiate instruction by providing a variety of materials appropriate for different learning styles and ability levels.

Enrichment Ideas:

1. Toy Shop Calculator Game - Prior to the lesson, duplicate the game materials (pages 26 - 31). Use card stock or construction paper and laminate if possible. Cut out all the game pieces and assemble in a large manila envelope. Glue the game directions on the front.
2. Computer Math Games - Permit students to practice skills by using software or by going to a favorite math website.
3. Math Stations - Set up math activities in "stations" or centers. See Math Stations for Middle Grades (www.lauracandler.com) for more ideas!

Classroom Management

When you allow students to work independently on Enrichment Activities, you need to establish ground rules. See the Golden Rules mini poster on the next page for ideas. Assign each person a partner so they have someone they can ask for help if they need it. If students are going to play a game, make sure they have been introduced to the game previously so they can work without assistance. Teacher assistants and parent volunteers can be invaluable in supervising your enrichment activities so you can focus on reteaching your small group. Have a back-up independent seatwork plan in the event the game doesn't work out!
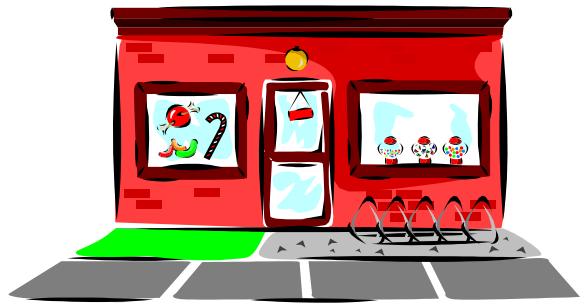
Golden Rules for Enrichment Activities

- Stay on task at all times.
- Don't bother anyone or call attention to yourself.
- Don't talk to the teacher while he or she is working with another group.
- Quietly ask someone if you need help. If that person can't help you, signal the teacher and do something else until help arrives.

Toy Shop
Calculator Game

Materials for 2 players:

- 2 calculators
- Problem Cards, Answer Key, and Game Board
- Toy Shop Spinner, paper clip, and pencil
- 2 Shopping Cart Game Pieces
- Dry erase board and marker (or paper and pencil)

Directions:
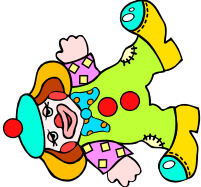
1. Put the Problem Cards face down in a pile. Place the Answer Key face down near the board.
2. Start your Shopping Carts on Enter.
3. Flip over a Problem Card. Both players use the calculator to find the answer. Write down your answers using correct money form (dollars or cents).
4. Use the Answer Key to check your answers.
5. Players who have the correct answer may each spin the Toy Shop Spinner to see how many spaces to move. If you land on a square with words, follow the directions!
6. The winner is the first to exit the store by landing on or passing the EXIT sign.
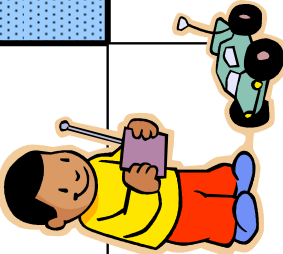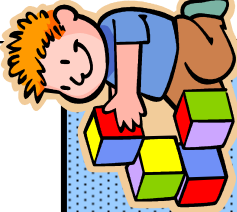
Move
to the
Kite

Go to the
Cash
Register

Go Back
to the
Crayons

TOY SHOP
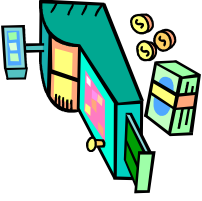
EXIT

ENTER

Move
to the
Clown

Go Back
to the
Teddy Bear

Toy Shop Spinner

A circular spinner divided into ten sections, reading clockwise from the top: 1, 2, 4, Spin Again!, 3, 6, 1, 5, Lose a Turn, 3.
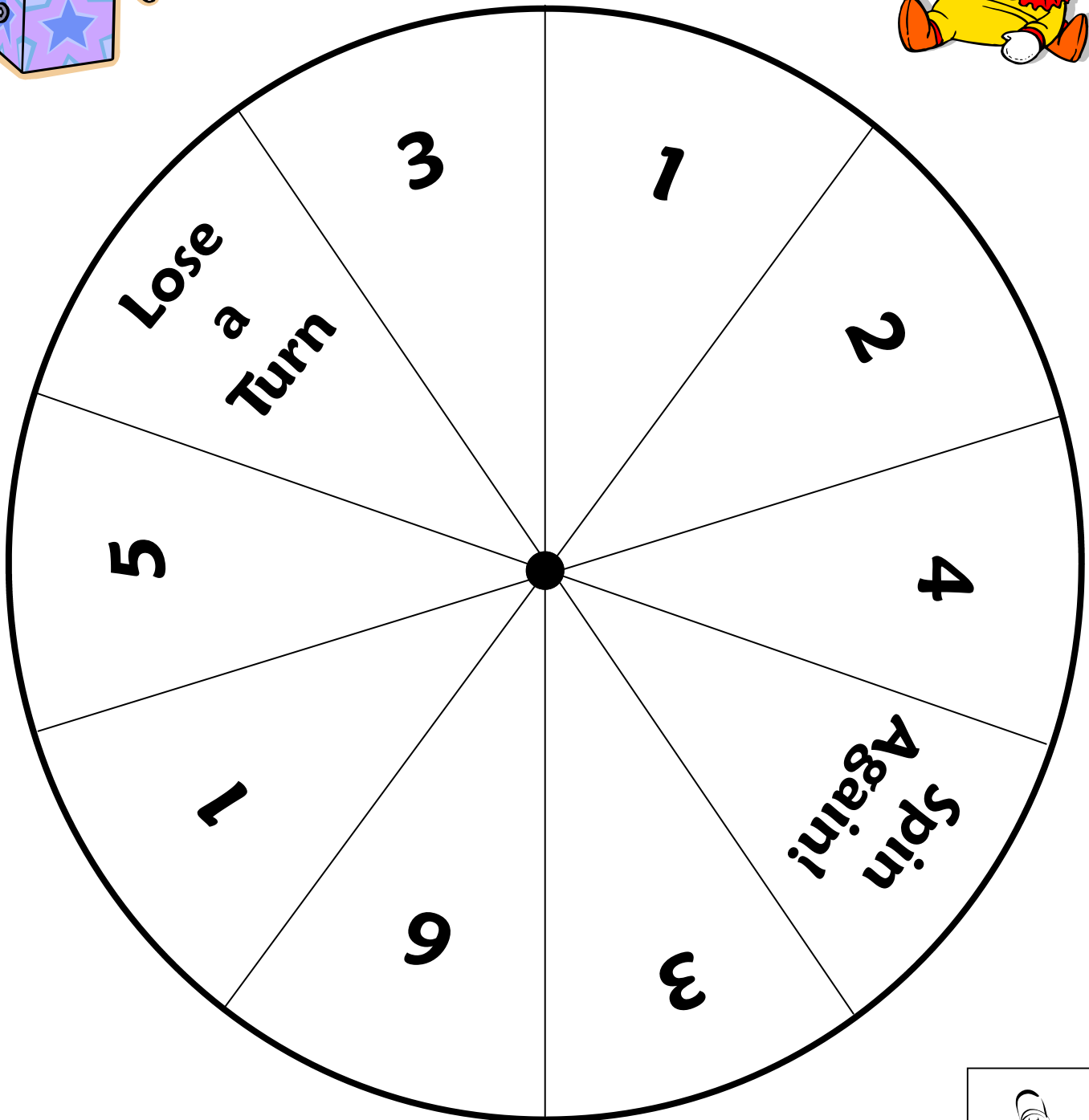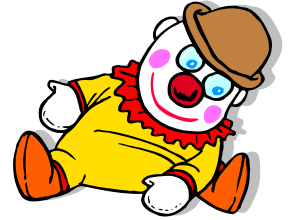
Directions: To use the spinner, you'll need a paper clip and a pencil. Put the paper clip down with one end over the center dot. Put the pencil point down inside the paper clip and hold the pencil in place. Thump the paper clip. It will spin around the pencil point and point to one section on the Toy Shop Spinner.

Toy Shop Problem Cards

#1

Sam bought a set of blocks for $4.85 and a ball for $2.42. How much did he pay in all?

#2

Jerry bought a toy car for $7.30 and paid with a $10 bill. How much change did he get back?
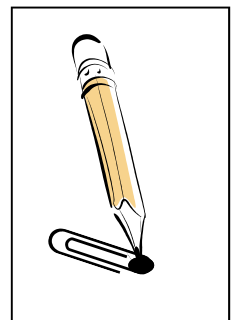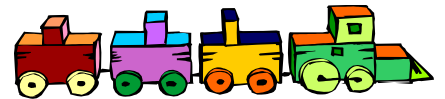
#3

Cindy buys two dolls for $7.48. If one doll costs $4.38, what is the cost of the other doll?

#4

A book of fairy tales was marked down from $9.95 to $7.70. How much money will Sherry save by buying it at the sale price?

#5

Allison gets $5.00 a week for allowance. If she spends $2.85 at the Toy Shop, how much will she have left?

#6

Vanessa bought two teddy bears for $2.35 each and one kite for $4.95. How much did she spend in all?

#7

Ryan's mom gave him 5 quarters. He wants to buy a top that costs $1.55. How much more money does he need?

#8

Dan bought one super ball for each of his five friends. If each super ball was 85¢ how much did he spend on his gifts?

#9

Greg and Theo shared the cost of a toy train. If they each spent $6.40, how much money did the train cost in all?

#10

Raymond spent 95¢ on crayons and $6.75 on a kite. How much money did he spend in all?

Toy Shop Answer Key

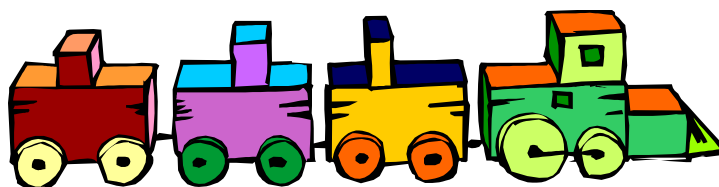1. $7.27

2. $2.70

3. $3.10

4. $2.25

5. $2.15

6. $9.65

7. $0.30 (30¢)

8. $4.25
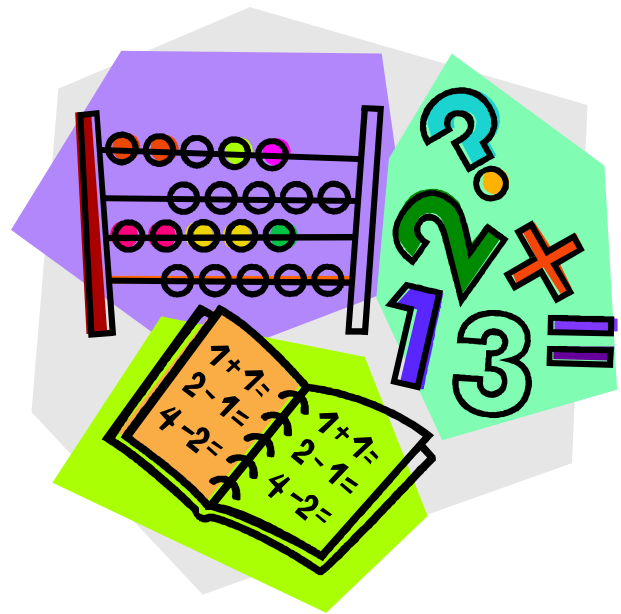
9. $12.80

10. $7.70

Shopping Cart Game Pieces

Color the shopping carts different colors and then cut out game pieces.

Toy Shop Problem Cards

Introduction to Problem Solving

## Activities to Teach Problem Solving Steps and Strategies

Steps and Strategies Intro

Teaching Strategies

When introducing young children to problem solving, you'll find it helpful to begin by focusing on a different strategy each day. There are probably a dozen strategies you could teach, but to keep things simple we'll focus on just 6 different methods. Each one has a blackline master with a few problems that can be solved using that strategy. Make a transparency of each blackline master and let your students work the problems on individual dry erase boards or scrap paper.

Day 1 - Introduction

Display or ask the first question shown on the blackline master: "What are some ways that we use math in our everyday lives?" Ask students to think about their own responses, and then give them 3 minutes to work with a partner and list their ideas. Then ask volunteers to share their ideas and create a class list on chart paper. Examples include time, money, measurement, etc.
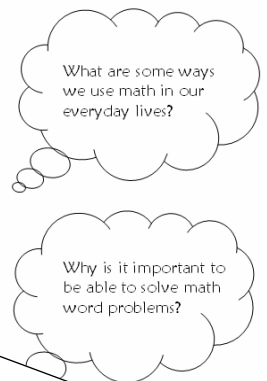
Page 39

Next discuss the related question, "Why is it important to be able to solve math word problems?" Students usually mention reasons like being on time, being able to figure out how much change you'll receive, knowing how much food to buy for a party, and so on.

Then explain that even though many students find word problems to be tricky, they can be fun if you think of them as puzzles or brainteasers. Tell them that you are going to share 6 different methods commonly used to tackle word problems. Display a transparency or chart showing the Problem Solving Strategies and briefly mention each method. (Hint: You might want to duplicate this page for your students or create a poster of the strategies since it's difficult to show them on the overhead when you are using the projector to work out math problems!)
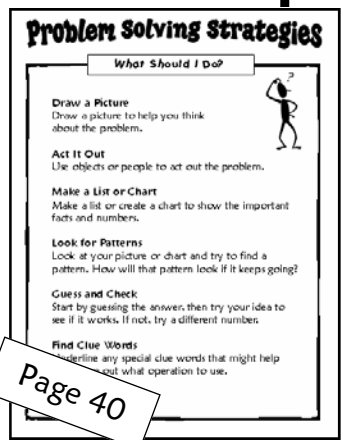
Page 40

Steps and Strategies Intro

Teaching Strategies

Finally, tell them that you are going to share four basic steps for solving almost any word problem. Display a poster or transparency of the steps (Read, Think, Solve, and Check). Read the steps and briefly explain the strategies for each step. Tell them that tomorrow they will learn to use those steps to solve some math puzzles.

Day 2 - Draw a Picture

The next day, begin by reviewing the Strategies and the Steps. Give the students a copy of the steps or have students draw the 4 arrows and write the 4 key words on paper or in a journal. Display a transparency of the "Let's Try It" page and explain how that problem was solved using the steps.

Now your students are ready to tackle their first problems! Display a transparency of the Draw a Picture problem page. Cover the bottom problem so they can focus on the top one. Read the problem aloud and model the 4 steps as you begin to solve it. For example, highlight clue words and underline the question. Ask students to draw their solutions, and let them know that you are not looking for artistic illustrations— you are looking for simple ways to picture the important elements of the problem. Walk around and observe students as they work. Let them show their strategies to a partner and compare their solutions. Model the "checking" step by asking them if their solutions are reasonable. Make sure everyone knows how to picture the solution.

Repeat this procedure for the second problem, modeling the correct use of each problem-solving step.

Practice Problem Answers: #1 - 12 cookies   #2 - 2 candy canes

Page 41

Page 42

Page 43

Steps and Strategies Intro

Teaching Strategies

Day 3 - Act It Out Strategy

It's important for students to realize that "acting it out" doesn't necessarily mean that people have to get up and move. Ordinary objects can be used as manipulatives to help solve problems. For example, the first practice problem involves folding a piece of paper, so the logical thing to do would be to pick up a piece of paper and actually fold it!

The second problem could be acted out by students, but it could also be solved by using squares of paper or plastic tiles labeled with the boys' names.

Practice Problem Answers: #1 - 4 sections   #2 - Sam is at the back

Day 4 - Make a Chart or a List

Sometimes the best strategy is to create an organized list or make a chart of the important facts and numbers. For the first problem, teach your students to make a chart like the one below. The problem becomes very easy to solve when the information is organized this way.

Day	Mon	Tues	Wed	Thurs
Total $ Earned	$5	$10	$15	$20

For the second problem, have them list the three students and what they know about the number rolled by each (see example at right). Once again, a problem that seems confusing becomes easy when the information is listed.

Practice Problem Answers: #1 - Thursday   #2 - Jill

Page 44

Page 45

Sara → 2
Tom → 2 x 2 = 4
Jill → 2 + 3 = 5

Steps and Strategies Intro

Teaching Strategies

Day 5 - Find a Pattern

Note: You may want to do this lesson on the same day that you teach the Make a Chart or List strategy. Sometimes the first step in finding a pattern is making a chart or list, such as chart used to solve the Car Wash problem on Day 4.

Begin by displaying the Strategies and Steps again. Tell students that they are going to practice a few pattern problems. Both of these are problems that can be easily drawn or counted to find the solution. Refer back to the chart you made for the car wash problem from the previous day's lesson and show that this is also a pattern problem.
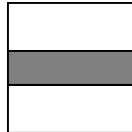
Practice Problem Answers: #1   #2 - white

Day 6 - Guess and Check

One way to solve Guess and Check problems is to make an organized list of your guesses and results. For example, in the first problem, you can make 3 columns for the coins and a place for the total (see chart at right). Guess the coins, and check to see if they add up to 16¢ and try again.

If this method is too confusing for your students, just have them draw a picture to represent the items such as coins or cards. For example, to solve the second problem, draw the two cards as an equation. Try writing and erasing different numbers Keep rereading the problem and checking your guesses to see if they work. (Remember that one card is twice as big as the other!)

Problem #1 - P, N, D   #2 - 4 and 8

Page 46

Page 47

Coin Problem Guesses

Coin 1	Coin 2	Coin 3	Total
1	1	5	7¢
1	5	5	11¢
1	5	10	16¢

$$\boxed{} + \boxed{} = 12$$

Steps and Strategies Intro

Teaching Strategies

Day 7 - Find Clue Words

When detectives are trying to solve a mystery, they look for clues. In the same way, when we are trying to solve "puzzling" problems, clue words can help us! Many teachers find it helpful to teach kids to find certain "clue words" to help them decide which operation will be used to solve word problems. See the chart on page 48 for examples of common clue words. There's also a blank blackline master on page 49 so that your class can generate their own list of clue words.
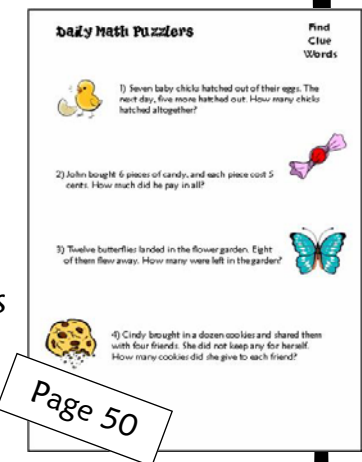
Page 48

To use this strategy, have your students underline or highlight any clue words or important numbers in each problem. Focusing on these clue words and key numbers can help some students identify what needs to be done to solve the problem. It gives them a place to start when they feel overwhelmed.

On the other hand, you should be aware that some educators do not feel this strategy is effective. Focusing on clue words may encourage students to look for quick and easy solutions rather than trying to visualize the problem or think through it in a meaningful way. Many clue words point to several different operations. For example, "in all" is frequently found in both addition and multiplication problems. The word "each" commonly appears in both multiplication and division problems.

Page 50

If you decide to proceed with a clue word lesson, post the clue word chart briefly while you display the four problems on page 50. Ask different students to come forward and highlight the clue words before having students solve the problems individually.

Answers: #1 - 12 chicks   #2 - 30¢   #3 - 4 butterflies   #4 - 3 cookies

Steps and Strategies Intro

Teaching Strategies

Day 8 - Write a Number Sentence

Writing a number sentence isn't really a problem-solving strategy at all. It's just a way to record mathematically how you solved the problem. You don't have to wait until the last day to teach kids how to write number sentences, but waiting until Day 8 allows you to review some of the other strategies while introducing this new step. In particular, you may want to review the strategy of finding clue words.

Some teachers like to have students write number sentences for every problem, but students at this age will have difficulty writing number sentences for 2-step problems. In some cases you may need to write 2 number sentences to show how the problem was solved.

Hint: Before you ask the students to write a number sentence for a problem, try writing one yourself. You will quickly realize that some problems just don't lend themselves to clear number sentences!

Let's look at the 3 problems on this worksheet. For each problem, ask the students how they might solve it, and then add "writing a number sentence" as a way to show with numbers how you solved the problem. Each one can be solved with a simple sketch, but after they create a picture, discuss the operation that was used to find the solution. Eventually they will be able to determine the operation before they even draw a picture.

Number sentences are written in a horizontal, rather than vertical, format and students at this age frequently struggle with how to write number sentences correctly. Providing multiple opportunities to practice will help students develop this skill.

Practice Problem Answers: #1   6 + 5 = 11 lily pads
                          #2   12 - 8 = 4 ladybugs left
                          #3   3 x 4 = 12 fish or 4 + 4 + 4 = 12 fish
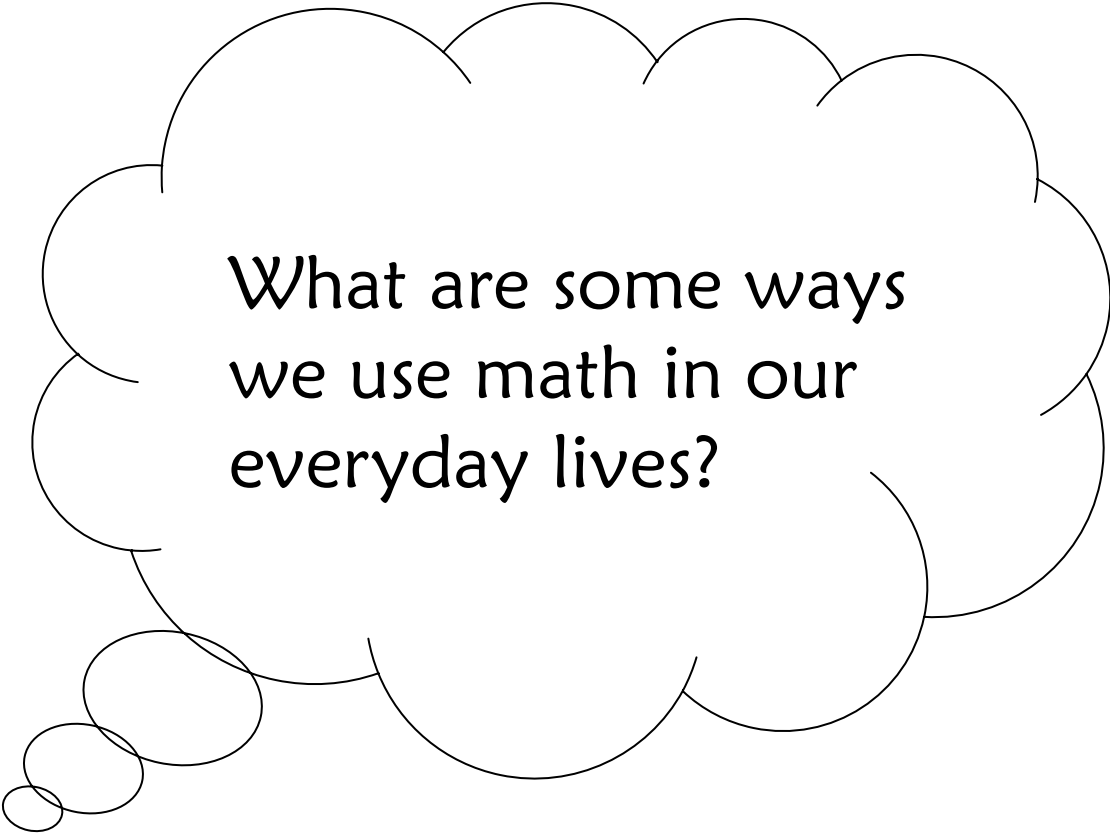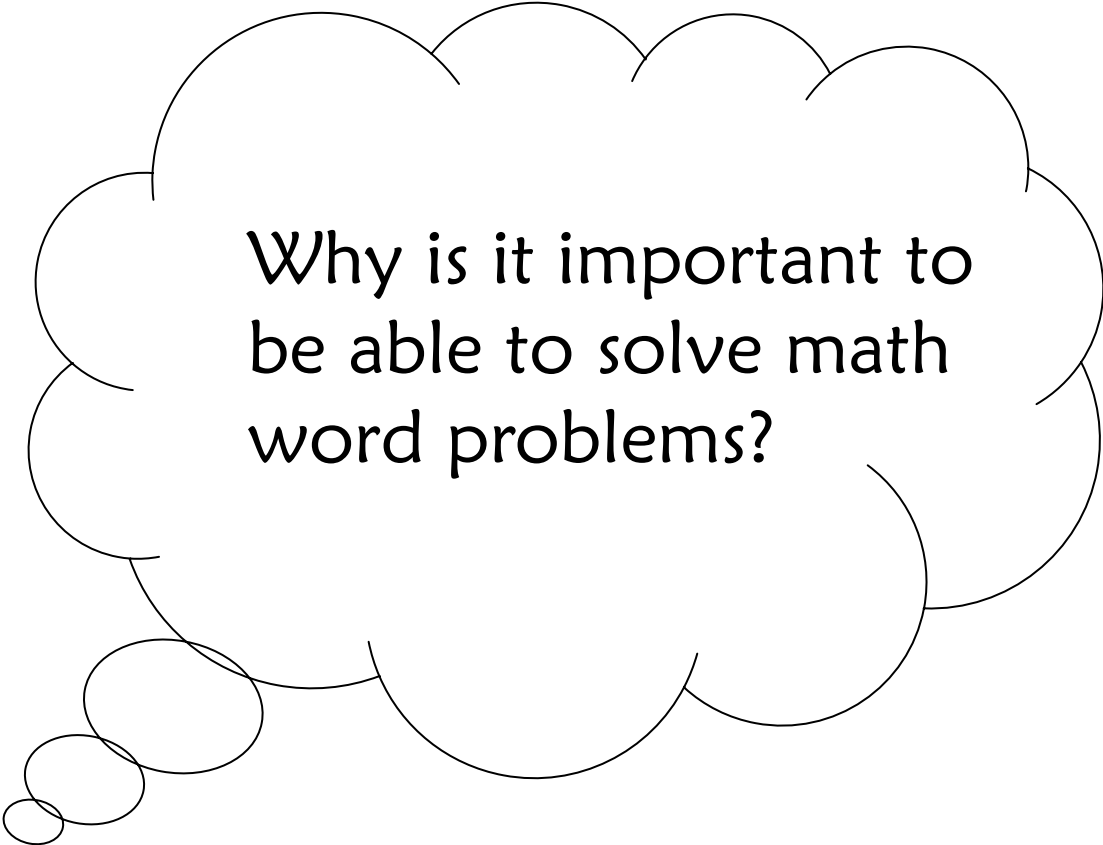
What are some ways we use math in our everyday lives?

Why is it important to be able to solve math word problems?

Problem Solving Strategies

What Should I Do?

Draw a Picture
Draw a picture to help you think about the problem.

Act It Out
Use objects or people to act out the problem.

Make a List or Chart
Make a list or create a chart to show the important facts and numbers.

Look for Patterns
Look at your picture or chart and try to find a pattern. How will that pattern look if it keeps going?

Guess and Check
Start by guessing the answer, then try your idea to see if it works. If not, try a different number.

Find Clue Words
Underline any special clue words that might help you figure out how to solve the problem.

Problem Solving Steps
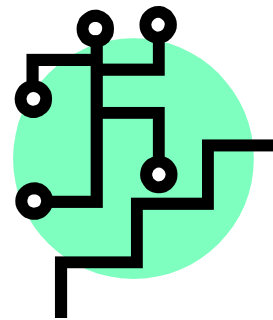
Read

- What facts are given?
- What is the question?
- Highlight clue words and important numbers.

Think

- Which strategies might work?
- Which operation should be used?

+
−
÷
x

Solve

- Carry out your plan.
- Solve the problem.

Check

- Double check your work.
- Reread the problem.
- Does the answer make sense?
- If not, try another strategy.
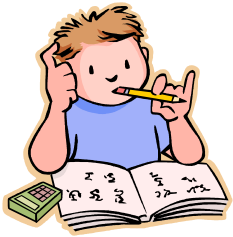
Let's Try It!

Read

Vicky made 6 pancakes and ate two of them. <u>How many pancakes were left?</u>

Think

I'll draw a picture showing all the pancakes. Then I'll cross off the ones she ate. I'll count the pancakes left over.

Solve
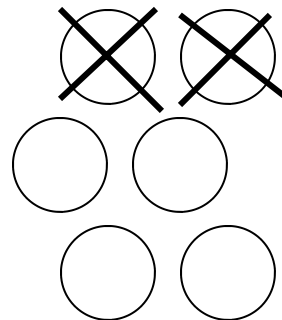
There are 4 pancakes left.

Check

I'll check my work with a number sentence: 6 - 2 = 4 This answer makes sense.

Daily Math Puzzlers

1) Sharon had 4 packages of cookies to share with her friends. If each pack had 3 cookies, how many cookies did she have in all?

2) Riki bought a box of six candy canes. He gave 1/2 of them to his sister. Then he ate one himself. How many candy canes were left?

Daily Math Puzzlers
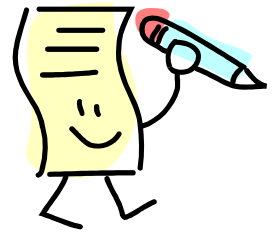
1) Julia folds a piece of paper in half. Then without opening it, she folds it in half again. When she opens her paper, how many sections will it have?

2) Four boys were standing in line to wait for movie tickets. Tom was at the front of the line. Bob was not at the back. Ramon was between Sam and Bob. Who was at the back of the line?

Daily Math Puzzlers

1) Vernon washed cars to earn money. Each day he earned $5. He started on Monday and saved his money. On what day did he have a total of $20?

2) Sara rolled a 2, and Tom rolled a number that was twice as big as Sara's number. Jill rolled a number that was 3 more than Sara's number. Who rolled the highest number?

Daily Math Puzzlers

1) Grace was making a quilt. She made a row of quilt squares that looked like the ones below. If she continues the pattern, what will the tenth square look like?
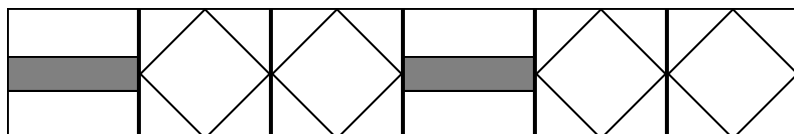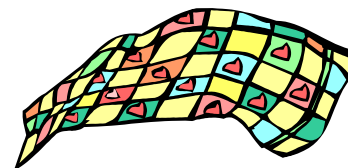
2) Ranon saw a line of white and red cars in the parking lot. The first two were white, but every third car was red. What was the color of the seventh car?

Daily Math Puzzlers

1) Nathan had some coins in his pocket. He took out three coins that had a total value of 16¢. What coins did he take out of his pocket?

2) Kayla drew 2 numbered cards from a deck. When she added the numbers, their sum was 12. One number was twice as big as the other one. What 2 cards did she draw out?

Problem Solving Strategies

Clue Words

Addition

Both
In all
Altogether
Sum
Total
Add

Subtraction

Minus   Away
Difference   Remain
Less   Than

How many more . . .
How many were left?

"Er" words such as
  longer, fewer,
  faster, farther, etc.
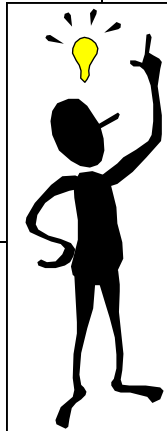
Multiplication

Times
Each
Altogether
In all
Total
Product
Multiplied

Division

Each
Shared
Part
Per
Divided

Problem Solving Strategies

Clue Words

Addition

Subtraction

Multiplication

Division
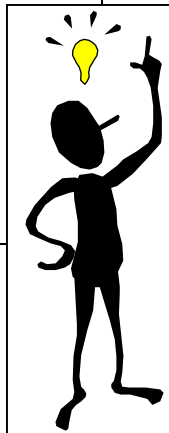
Daily Math Puzzlers
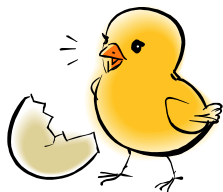
1) Seven baby chicks hatched out of their eggs. The next day, five more hatched out. How many chicks hatched altogether?
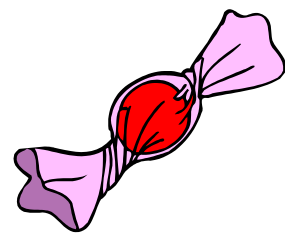
2) John bought 6 pieces of candy, and each piece cost 5 cents. How much did he pay in all?
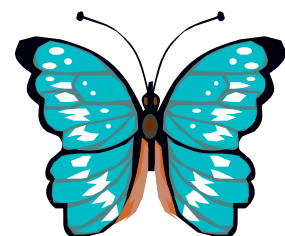
3) Twelve butterflies landed in the flower garden. Eight of them flew away. How many were left in the garden?

4) Cindy brought in a dozen cookies and shared them with four friends. She did not keep any for herself. How many cookies did she give to each friend?

Daily Math Puzzlers

1) Freddie Frog hopped over 6 lily pads and then jumped over 5 more. How many lily pads did Freddie hop over in all?

2) There were twelve ladybugs on a branch. Eight of them crawled away. How many were left on the branch?
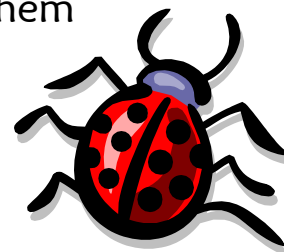
3) Three people were fishing in a stream. Each person caught 4 fish. How many fish were caught in all?

Daily Math Puzzler Program

Program Description and Strategies

Daily Math Puzzler Program

Teaching Suggestions

After several weeks of introductory activities, you are finally ready to get started with your Daily Math Puzzler Program! The following strategies are to be regarded as suggestions only. Feel free to modify the program to suit your own needs.
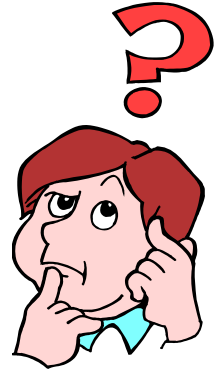
Problem-Solving Activity Pages

This Power Pack includes 20 weeks' worth of problem-solving activity pages coded according to level and page number. The code appears in the lower left corner of the activity page. Level A denotes the level of all problems in this packet, which are on a 2nd through 4th grade level. The number refers to the numerical sequence, but the worksheets can be used in any order. For example, A-3 refers to Level A, worksheet #3. If you purchase more than one level, it will be helpful to know the worksheet level in the event they become mixed together.

Should you use the activity pages in order? Not necessarily. You're the best judge of what page to use each week. Review the problems to make sure your students are ready for them. The problems should be somewhat challenging, but they shouldn't be completely frustrating. To be successful, your students should have had some previous experience with those mathematical concepts. For example, if a worksheet contains problems that require students to calculate elapsed time, they may be lost, even after you explain the answer. In general, as the page number increases, the problems become progressively more difficult. However, the difficulty also depends on when you introduce concepts like fractions and measurement. If you don't use the activity pages in order, you'll want to use the chart on page 110 to keep track of when and how you use them.

Answer Key

For your convenience, an answer key is included on page 113. Only one answer is given for each problem, though in some cases, more than one right answer may be possible. Be willing to accept different answers if they are justified by students based on a different interpretation of the problem.

Daily Math Puzzler Program

Program Sequence

Daily Math Puzzler Program Snapshot

1. Prepare and distribute weekly worksheet on Monday.
2. Students solve problem #1 independently.
3. Teacher checks problem #1.
4. Whole class instruction on problem #1.
5. Individuals correct problem #1 independently.
6. Repeat with a new problem on Tuesday, Wednesday, and Thursday.
7. Collect papers on Friday for final review and/or grading.

Strategies and Suggestions

1. **Prepare Weekly Worksheet** - To prepare the Daily Math Puzzler worksheet, copy the two pages with the same letter and number onto the front and back of a sheet of paper, or staple the two pages together. This set of four problems will be referred to as a weekly worksheet or weekly activity page, even though it consists of 2 pages of problems.

   Introduce Weekly Worksheet - On Monday, give each student a copy of the weekly worksheet and explain that they will work on one problem each day. You will discuss each day's problem the next day, after you have had a chance to review their work. Following this sequence, in a normal 5-day week, the final problem will be discussed on Friday.

2. **Independent Work** - After being given the activity page, students should try to solve the first problem without help. They should NOT take the worksheet home to get extra help because it's too easy for them to let someone else do all the work. Also, tell them not to work ahead and do all the problems - they need to focus their thoughts and energies on the <u>first problem</u> only. They should show all work and write the solution on the answer line. Encourage students to draw a picture to show their thinking rather than just writing a number sentence.

Daily Math Puzzler Program

More Strategies

3. **Quick Check** - This is a two-step process:
   A. As they are working, circulate and check over their explanations and answers. If anyone has the correct solution and the work to support that answer, circle the ✓+. If they don't have the right answer or don't show their work, don't circle anything at this point.
   B. After they have had sufficient time to work, collect their worksheets. Check over any remaining worksheets.
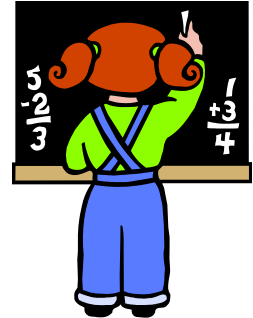
4. **Mini Lesson and Discussion** - The next day, return the worksheets. Students who had the problem correct may begin working on the next problem. Ask the others to put their pencils down while you teach a mini-lesson on one method of solving the first problem. Demonstrate by drawing pictures, acting it out, using guess and check, etc. Involve them in the lesson, but don't let them blindly copy the answer from the overhead projector. Ask students if they can think of other ways to solve the problem. Use the Math Money coupons to reward students for creative thinking. (Download the free Classroom Economy Power Pack to learn how to implement a classroom economy reward system.)

5. **Students Revise Answers** - Now, turn off the overhead projector and have students use one of the methods to correct their work and write the answer. They need to do more than put a new answer on the line - they also need to show work that reflects the correct answer. Circle a ✓ for anyone who successfully solves the problem. As they finish this problem, they may begin working on the next one. You can use this time to circulate through the room and begin reviewing their work.

6. **Repeat and Review Work** - Repeat these steps for each problem, completing one per day. Collect the papers on Friday for a final review and/or grading. Any grade should be based on effort and participation as well as correctness of answers. If students aren't able to correct some of their answers, circle the ✓- to show that they made an attempt but never successfully reworked the problem.

Math Money		Math Money
Math Money		Math Money
Math Money		Math Money
Math Money		Math Money
Math Money		Math Money

Daily Math Puzzler Program

Alternative Strategies

Homework - Send one worksheet home each week for homework, then collect them to review and discuss at school.

Problem of the Week Challenges - Why not include one Daily Math Puzzler problem on your weekly newsletter? Students can work with their parents to solve the problem and submit their answers by a certain due date. Offer Math Money to students who get the problem correct!

Problem Solving Focus Days - Devote one day a week to solving all four problems. Use a cooperative learning strategy and spend one class period a week on problem solving rather than 15 minutes a day.

Paper Saver Option - To save paper, make a transparency and have students work the problems on dry erase boards or their own paper.

Written Explanations - Does your state require students to write out explanations when they solve word problems? If so, you will want to add that component to your problem-solving routine. You can use the Solve and Write blackline master on page 60 and duplicate it on the back of each worksheet. Or just have students write explanations on lined paper and staple their papers to the back of the activity page.

Problem-Solving Checkpoint System - At first, it's important to have students review the problem-solving steps and procedures. You can duplicate the checkpoint list on page 58, then cut the slips apart and laminate them for students to use when solving problems.

One Problem Per Page - At the beginning of the year, you may want to present just one problem per day to students rather than overwhelming them with four on a page. If so, cut out and paste one problem on the single page template found on page 59 and then duplicate it for students. This template provides more work space as well as the checkpoint system for checking off each step of the problem-solving process.

Problem Solving Checkpoint

- ❑ I read the problem twice.
- ❑ I underlined key words.
- ❑ My work shows my thinking.
- ❑ I checked my answer.
- ❑ I wrote a complete answer.

- -

Problem Solving Checkpoint

- ❑ I read the problem twice.
- ❑ I underlined key words.
- ❑ My work shows my thinking.
- ❑ I checked my answer.
- ❑ I wrote a complete answer.

- -

Problem Solving Checkpoint

- ❑ I read the problem twice.
- ❑ I underlined key words.
- ❑ My work shows my thinking.
- ❑ I checked my answer.
- ❑ I wrote a complete answer.

Daily Math Puzzler

Name _____

Date _____

Work Space:

Checkpoint
❑ I read the problem twice.
❑ I underlined key words.
❑ My work shows my thinking.
❑ I checked my answer.
❑ I wrote a complete answer.

Solve and Write

Name _____

Date _____

Explain your answer in writing:
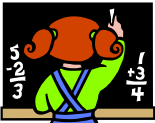
_____

_____

_____

_____

_____

_____

Checkpoint
- ❑ I read the problem twice.
- ❑ I underlined key words.
- ❑ My work shows my thinking.
- ❑ I checked my answer.
- ❑ I wrote a complete answer.

60

Daily Math Puzzler Program

Cooperative Learning

Stretch mathematical thinking by involving students in Cooperative Learning problem-solving tasks. The key is to teach students to discuss HOW they are solving problems without giving away the answers or copying from each other's papers. With careful monitoring, it can be done!
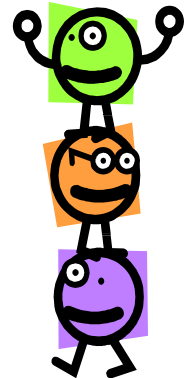
Math Buddy Chat - Divide your class into Math Buddies and give each student a worksheet. If you differentiate and use different levels, both students should have the same worksheet.
Directions:
1. Place a copy of the Math Buddy Chat directions (page 62) on the overhead projector or post them on chart paper.
2. The first time you use the activity, review all the directions at once.
3. Cover up the steps and reveal them as students complete each step.
4. Remind students not to "give away" the answer in the first part of the activity. They are only allowed to reveal their solutions in the last step.

Math Team Talk - Math Team Talk is similar to Math Buddy Chat but it's a more advanced activity. It's used by an entire team, and students will complete the whole worksheet in one class period.
Directions:
1. Make a transparency of the Math Team Talk directions (page 63) Put a sturdy plastic cup in the center of each team, and give each person one copy of the same Daily Math Puzzler worksheet.
2. At first, you'll need to model the Math Team Talk activity for students and guide them through it in a step-by-step manner. After that, they may want to progress through the worksheet at their own pace.
3. Remind students that they may only talk when their pencils are in the cup. When they have their pencils in their hands, they must work on the problem on their own without talking! This step ensures individual accountability and discourages cheating.
4. Since students have to explain every problem in their own words, this assignment lends itself to individual grading or evaluation.

Math Buddy Chat
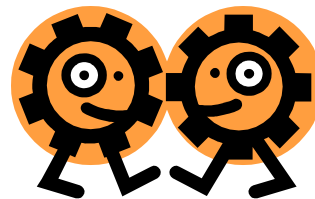
Read & Think

On Your Own
- What facts are given?
- What is the question?
- Highlight clue words and important numbers.

Discuss
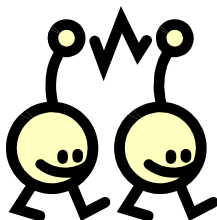
Buddy Chat
- How will we solve the problem?
- How can we show our work?

$$+$$
$$-$$
$$\div$$
$$x$$

Solve & Check

On Your Own
- Carry out your plan.
- Solve the problem.
- Reread the question.
- Does your answer make sense?

Discuss
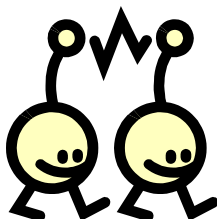
Buddy Chat
- Let's compare our work.
- Do we have the same answer?
- If not, what did we do differently?

Math Team Talk
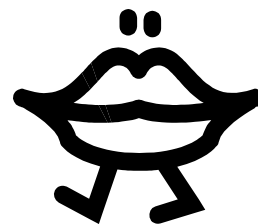
Directions

1. Team members have identical worksheets.

2. Each person places his or her pencil in the cup.

3. Person #1 is the first Leader. The Leader reads the first problem aloud and everyone discusses how to solve it. Just talk about what you need to do, but don't solve the problem and don't tell the answer!

4. The Leader asks, "Is everyone ready?"

5. If someone says "No," keep talking about how to solve the problem.

6. When ready, everyone picks up their pencils.

7. **Without talking**, everyone solves the first problem and writes the answer on the line. Everyone must show how they solved problem.

8. Pencils are placed back in the cup.

9. Person #2 becomes the new Leader. Continue rotating Leaders for each question.

Pencils In = Talking
Pencils Out = No Talking

Daily Math Puzzler Program

Teacher Tips*

Highlighters - I wanted to share what I have my kids do when they are doing these kind of problems. They read the problem twice. The second time they use two color highlighters. They highlight key info with one color and the question with another. They love using highlighters and they are much more focused on the problem. ~ Sharyn Powell

Spiral Notebooks - I have the students cut out the problems and paste them into a spiral notebook, one problem per page. This way they have space for working out the problem as well as a written explanation if required. ~ Suzann Falgione

Sentence Answers - When my kids answer word problems, after the computation they then answer the question in a simple sentence, such as "Ronald had 247 more cards than Brad." This way, they can "self-check" if their answer makes sense. They are not just looking at the numbers in the problem and choosing an operation. Putting the answer into words also helps the kids with language issues (ESL or ESE.) ~ Linda Schuman

Problem-Solving Bulletin Board - Something I've done before was to have a bulletin board area with the Problem of the Week posted. When students have completed their answers (pictures, words, symbols), they post them face down. At the end of the week, or the Thursday night before, I "reveal" all the submitted answers. The kids are excited to compare and see what everyone else posted. We then discussed the correct answer and some of the ways it was solved. I've also seen something similar done as a whole school. The problem was posted, answers submitted to a sealed box, then posted at the end of the week. The display remained up for a week after for parents, community members, and other staff and students to view. ~ Rose Carre

* Teacher Tips submitted by field testers and teachers who are using the Daily Math Puzzler program. Feel free to send your teacher tips to Laura at lauracandler@att.net.

Daily Math Puzzler Program

Dear Parents,

Math problem solving is challenging for most students, but it's also extremely important. Knowing how to add, subtract, multiply and divide is meaningless if you can't solve problems in everyday life. That's why I'm excited to introduce Daily Math Puzzlers, a new weekly math program that will take just a few minutes a day but will help your child build a solid foundation in math.

Here's how the program works. Every Monday I will give my students a worksheet containing four math word problems. One problem will be completed each day, Monday through Thursday. Each day before they do another problem, we will discuss the problem from the previous day. We've been learning a variety of problem-solving steps and strategies, and now it's time to apply what we've learned.
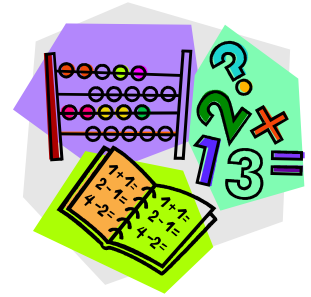
Daily Math Puzzler Guidelines:

- Students solve one problem per day, and they must show their work with numbers, pictures, symbols, or words.
- Students should try to work each problem on their own first without receiving outside help. Each day we will discuss the previous day's problem as a class, and your child can make corrections at this time.
- Your child may use a calculator if he or she knows how to solve the problem but is not comfortable with the computation needed for the solution.
- The Daily Math Puzzler activity sheet will be graded on effort and participation as well as work quality. Students might not have all the problems correct at first, but they can still do well if they ask questions, share ideas, and correct their answers in class.

Even though I'm requesting that you do not assist your child at home with this assignment, I wanted you to be aware of this program and how I will evaluate your child's performance. If you have any questions, please feel free to contact me and I'll explain the program in more detail. Thanks for your support!

Sincerely,

Daily Math Puzzler Activity Pages

Daily Math Puzzlers

Name _____

Try to solve each problem by yourself, and then we will work on them together. Be sure to show your work using pictures, words, or numbers.

1. Susan and Julie ate some cookies. Susan ate three more than Julie. If Julie ate two, how many cookies did Susan eat?

Answer: _____

2. Larry visited a farm and saw five chickens and three pigs. How many legs did he count on those animals?

Answer: _____

A-1

Daily Math Puzzlers

Name _____

Try to solve each problem by yourself, and then we will work on them together. Be sure to show your work using pictures, words, or numbers.

1. Susan and Julie ate some cookies. Susan ate three more than Julie. If Julie ate two, how many cookies did Susan eat?

Answer: _____

✓-   ✓   ✓+

2. Larry visited a farm and saw five chickens and three pigs. How many legs did he count on those animals?

Answer: _____

✓-   ✓   ✓+

A-1

Daily Math Puzzlers Continued

3. Jay and David shared this pizza. Jay ate two pieces and David ate twice as many as Jay. How many pieces did they eat in all?
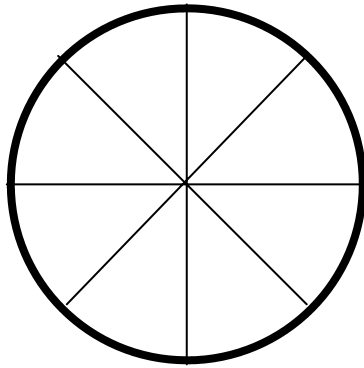
4. Thomas wanted to buy a candy bar for 65¢. He found 2 quarters in his pocket. How much more money does he need?

Answer: _____

✓-   ✓   ✓+

Answer: _____

✓-   ✓   ✓+
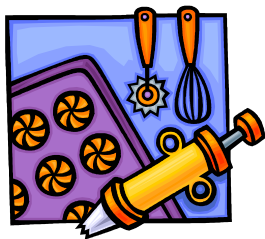
A-1

Daily Math Puzzlers

Name _____

Try to solve each problem by yourself, and then we will work on them together. Be sure to show your work using pictures, words, or numbers.

1. Lisa bought a dozen cupcakes for her birthday party. She invited six boys and seven girls to her party. Will there be enough cupcakes for each person to have one? Show how you know.

Answer: _____

✓- ✓ ✓+

2. Ronald spins this game spinner. Is he more likely to land on an even number or an odd number?

Answer: _____

✓- ✓ ✓+

A-2

Daily Math Puzzlers Continued

3. Ethan built a tower with nine blocks. Sammy added seven more to the top of the tower. How many blocks did the tower have in all?

Answer: _____

✓-   ✓   ✓+

4. The temperature outside at 8 a.m. was 25°F. Each hour it increased 2 degrees. What was the temperature at 11:00 a.m.?

Answer: _____
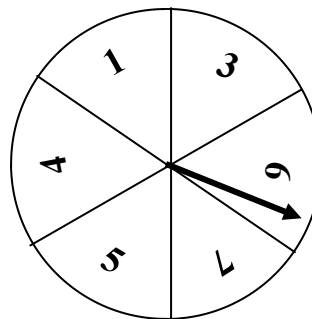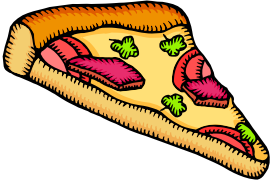
✓-   ✓   ✓+

A-2

Daily Math Puzzlers

Name _____

Try to solve each problem by yourself, and then we will work on them together. Be sure to show your work using pictures, words, or numbers.

1. Mrs. Denka's class voted to see how many people liked each pizza topping. How many more students voted for pepperoni than cheese?

Favorite Pizza Toppings
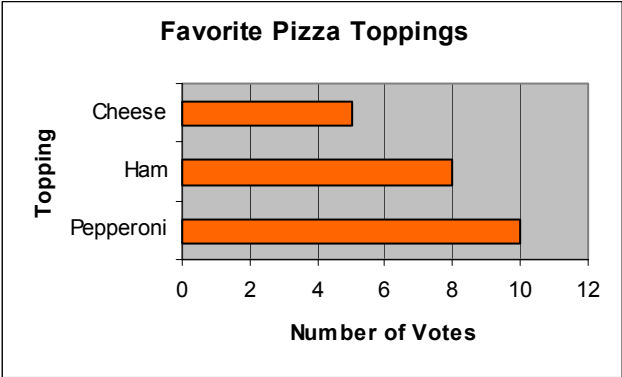
2. Dillon collected shells at the beach. In the first hour he collected 8 shells. During the next hour, he collected twice as many. How many did he collect in all?

Answer: _____

✓- ✓ ✓+

Answer: _____

✓- ✓ ✓+

A-3
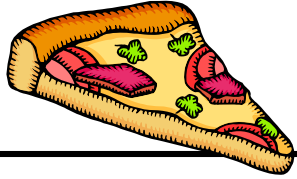
3. Jake is making a small bookshelf. He bought a piece of wood one yard long. He needs to cut it into 1-foot pieces for his shelves. How many shelves will he get from the board?

Answer: _____

✔-   ✔   ✔+

4. Chelsey is buying hotdog rolls for the family cookout. The rolls are packaged with a dozen in each bag. If she buys 2 packages, how many rolls will she have?

Answer: _____

✔-   ✔   ✔+

A-3

72

Daily Math Puzzlers

Name _____

Try to solve each problem by yourself, and then we will work on them together. Be sure to show your work using pictures, words, or numbers.

1. Sammy is keeping a journal about the books he is reading. He plans to write one page each day for two weeks. How many pages will he fill in his journal?

Answer: _____

✓-   ✓   ✓+

2. Ronda has 4 coins in her pocket worth a total of 37¢. What coins does she have?

Answer: _____

✓-   ✓   ✓+

73

A-4

Daily Math Puzzlers Continued

3. Lauren watched a caterpillar crawl up a tree. It went four inches in 1 minute and eight inches in 2 minutes. How many inches did it travel in 5 minutes?

4. Justin looked at his watch and saw the time below. He needs to go to soccer practice in one hour and a half. What time will he leave for practice?
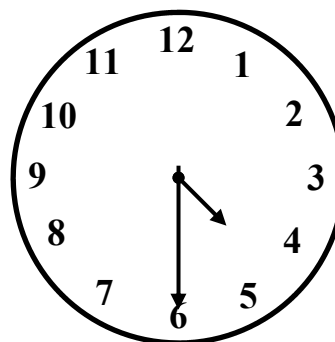
Answer: _____

✓-   ✓   ✓+

Answer: _____

✓-   ✓   ✓+

A-4

Daily Math Puzzlers

Name _____

Try to solve each problem by yourself, and then we will work on them together. Be sure to show your work using pictures, words, or numbers.

1. Nick ate 17 grapes. Nick's brother Don ate 3 fewer grapes than Nick. How many grapes did Don eat?

2. Wanda is putting her drawings in an album. She has 15 drawings, and each page can hold 3 drawings. How many pages will she fill? Fill in the chart to find the answer.

Pages					
Drawings					

Answer: _____

✓-   ✓   ✓+

Answer: _____

✓-   ✓   ✓+

A-5
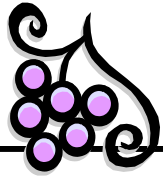
Daily Math Puzzlers Continued

3. Harold earns $1.00 each week for his allowance. He has to put half of that in his piggy bank. How much does he have left to spend?

4. Isabella shared these candy canes with her three friends. She did not keep any for herself. If each friend received the same amount, how many did each friend get? How many were remaining?
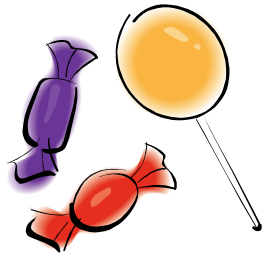
Answer: _____

✓ -   ✓   ✓ +

Each: _____   **Remaining:** _____

✓ -   ✓   ✓ +

Daily Math Puzzlers

Name _____

Try to solve each problem by yourself, and then we will work on them together. Be sure to show your work using pictures, words, or numbers.

1. William's mother gave him $1.00 to spend at the Sweet Stop Candy Shop. He wants to buy a Lollipop and some Peanut Brittle. Will he have enough money? Show how you know.

2. Olivia bought 2 packs of Bubble Gum and some Lemon Drops. If she pays with three quarters, how much change will she get back?

Sweet Stop Candy Shop

Lollipops	50¢
Bubble Gum	25¢
Lemon Drops	10¢
Peanut Brittle	60¢
Chocolate Bars	75¢

Answer: _____

✓-   ✓   ✓+

Answer: _____

✓-   ✓   ✓+

A-6

77
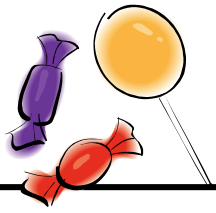
Daily Math Puzzlers Continued

3. April is 8 years old. Sam is 2 years younger than April. Emma is 5 years older than April. How old is Emma?

Answer: _____

✓-　　✓　　✓+

4. Sasha collects shells and wants to line them up on her shelf. Her shelf is 1 foot wide. If all her shells are as wide as this one, about how many shells can she place side by side on one shelf?

Answer: _____

✓-　　✓　　✓+

A-6

Daily Math Puzzlers

Name _____

Try to solve each problem by yourself, and then we will work on them together. Be sure to show your work using pictures, words, or numbers.

1. Amy wants to order ice cream at the State Fair. She can order chocolate, vanilla, or strawberry and has a choice of a bowl or a cone. If she orders one scoop, how many combinations are possible?

Answer: _____

✓-   ✓   ✓+

2. Darryl is making some punch for his birthday party. He starts with 3 cups of ginger ale and adds $\frac{1}{2}$ cup lemonade and $\frac{1}{2}$ cup orange juice. How many one-cup servings does his recipe make?

Answer: _____

✓-   ✓   ✓+

A-7

Daily Math Puzzlers Continued

3. Mrs. Jemison began watching a movie at the time shown. The movie ended at half past six. How long did the movie last?
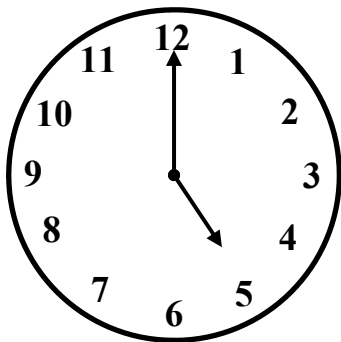
Answer: _____

✓-   ✓   ✓+

4. In one hour, Kylie sent 9 text messages to her friend. If she paid 5¢ for each message, how much did she spend?

Answer: _____
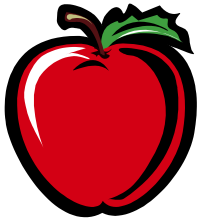
✓-   ✓   ✓+

A-7

Daily Math Puzzlers

Name _____

Try to solve each problem by yourself, and then we will work on them together. Be sure to show your work using pictures, words, or numbers.

1. Apples cost 50¢ each at the Farmer's Market. How many apples can you buy with $4.00?

2. Jose planted 4 rows of lettuce and 5 rows of carrots. Rabbits got into his garden and ate 3 rows of carrots and 1 row of lettuce. How many rows of vegetables were left?

Answer: _____

✓-   ✓   ✓+

Answer: _____

✓-   ✓   ✓+

A-8
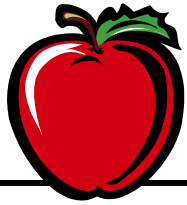
Daily Math Puzzlers Continued

3. Bob went to visit his friend Tom. Then he went to Jim's house to deliver a package before going home. How many miles did Bob travel in all?

Tom

Bob

1 mile

½ mile

1 and ½ miles

Jim
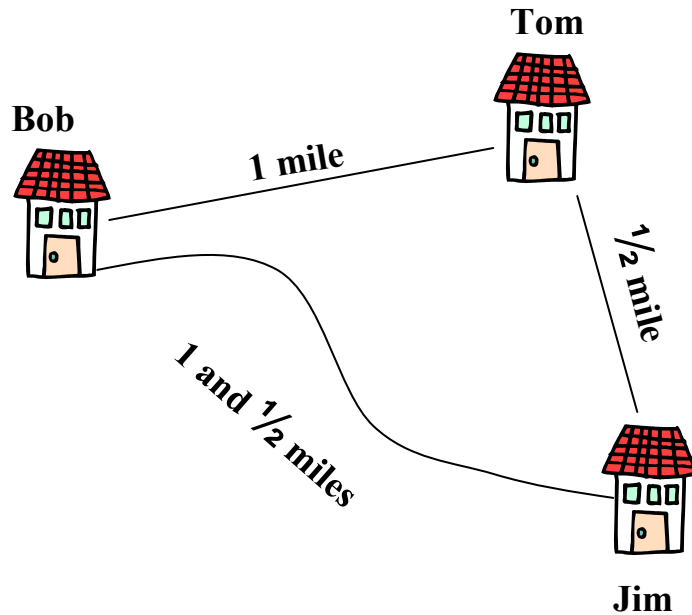
Answer: _____

✓-   ✓   ✓+

4. Dylan finished breakfast at the time shown below and watched TV until noon. How many hours did he watch TV?
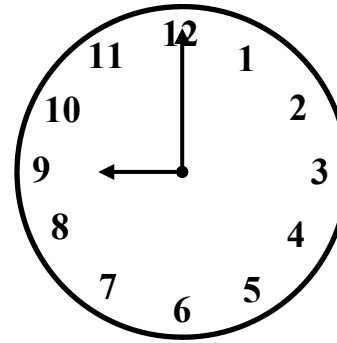
Answer: _____

✓-   ✓   ✓+

A-8

Daily Math Puzzlers

Name _____

Try to solve each problem by yourself, and then we will work on them together. Be sure to show your work using pictures, words, or numbers.

1. Adam has to go to bed in one hour. He spends 40 minutes reading a book. How much time does he have left before bed?

2. The Pizza Parlor has rectangular tables. One person can sit at each end, and two people can be seated on each of the long sides. How many people can sit together at one table?

Answer: _____

✓-   ✓   ✓+

Answer: _____

✓-   ✓   ✓+

A-9

3. Lily counted 6 ducks sitting on nests. Five ducks had laid 2 eggs, and one duck had laid 3 eggs. How many eggs in all?

Answer: _____

✓-   ✓   ✓+

4. Ice cream costs $1.00 for the first scoop and 50¢ for each scoop added on to the top. How much would it cost to buy 3 scoops of ice cream?

Answer: _____

✓-   ✓   ✓+

A-9

Daily Math Puzzlers

Name _____

Try to solve each problem by yourself, and then we will work on them together. Be sure to show your work using pictures, words, or numbers.

1. Sally mows lawns to earn money. She earns $4 for each hour she works. She made a chart showing her earnings, but the last few amounts were torn off. How much did she earn by the end of her 8-hour day?

Total Earnings

1st Hour $4
2nd Hour $8
3rd Hour $12
4th Hour $16
5th Hour $20
6th Hour
7th Hour
8th Hour

Answer: _____

✓-   ✓   ✓+

2. Mr. Ramos took 2 weeks of vacation. He spent 4 days working in the yard and 9 days on a family vacation. How many days left before he goes back to work?

Answer: _____

✓-   ✓   ✓+

A-10

85

Daily Math Puzzlers Continued

3. Luis planted 3 bean seeds in each of 4 different cups and they all sprouted. His cat knocked one cup off the table. How many bean sprouts were left?

Answer: _____

✓- ✓ ✓+

4. Sara counted 8 nickels, 2 dimes, and one quarter in her coin purse. How much money does she have in all?

Answer: _____

✓- ✓ ✓+

A-10

Daily Math Puzzlers

Name _____

Try to solve each problem by yourself, and then we will work on them together. Be sure to show your work using pictures, words, or numbers.

1. Darryl and Evan were given chocolate bars for a treat. Darryl said he was going to eat $\frac{1}{2}$ of his and save the rest. Evan said he was going to eat $\frac{1}{3}$ of his candy bar. Who ate a larger piece of chocolate? Use the bars below to show how you know.

Darryl's Bar

Evan's Bar

Answer: _____

✓- ✓ ✓+

2. Angela read two books last week. Tara read 4 more books than Angela. Martin read one less book than Tara. Who read the most books? Show how you know.

Answer: _____

✓- ✓ ✓+

Daily Math Puzzlers Continued

3. Mrs. Stargo's class made a Venn diagram showing who liked two sports. How many people like to swim?

Skating   **Swimming**

Mason   Kyle

Beth

Amber   Eric

Ron

Ariel   Joel   Jason

Blake
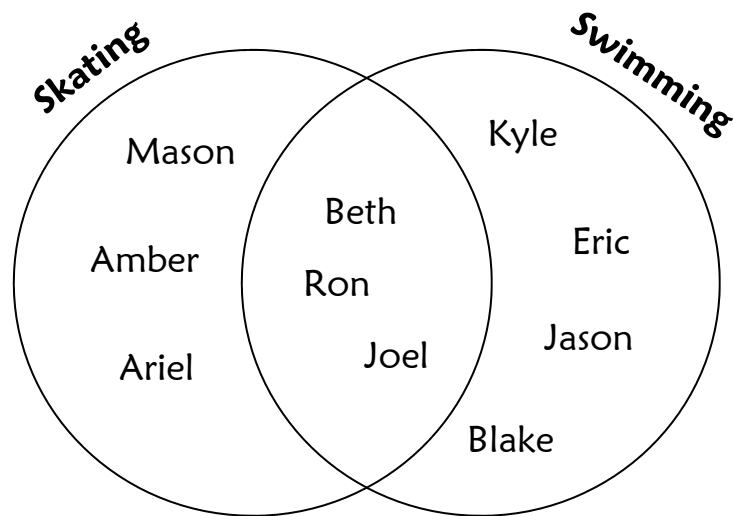
Answer: _____

✓-   ✓   ✓+

4. Rafael has 6 dimes and 3 nickels in his pocket. He needs quarters to use in the drink machine. How many quarters can he get for the money in his pocket?

Answer: _____

✓-   ✓   ✓+

Daily Math Puzzlers

Name _____

Try to solve each problem by yourself, and then we will work on them together. Be sure to show your work using pictures, words, or numbers.

1. Six apples are needed to make one apple pie. Francine has 10 apples and wants to make 2 pies. How many more apples does she need?

2. Demetrius shared these cookies with his friend Jamal. Demetrius ate half of the cookies and Jamal ate two. Were any left over? Show how you know.

Answer: _____

✓-   ✓   ✓+

Answer: _____

✓-   ✓   ✓+

A-12

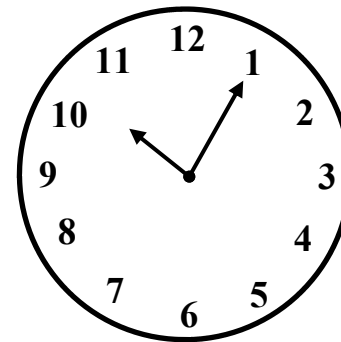3. Jon is buying donuts for breakfast. Plain donuts are 25¢ each and frosted ones are 50¢ each. He has $2.00 to spend and wants to buy 2 frosted donuts. How many plain donuts can he buy with the rest of his money?

Answer: _____

✓-　　✓　　✓+

4. Ruth's favorite cartoon show comes on at half past ten. How many minutes does she have to wait before her show comes on?

Answer: _____

✓-　　✓　　✓+

Daily Math Puzzlers

Name _____

Try to solve each problem by yourself, and then we will work on them together. Be sure to show your work using pictures, words, or numbers.

1. Ten children were lined up to take a turn on the seesaw. Jeffrey was the 7th person in line. How many people were in front of him?

2. Amanda started reading her book on Monday and read 10 pages each day. She needs to finish her book by Friday. If her book has 55 pages, will she finish on time? Fill in the chart to find out.

Days	M	T	W	Th	F	S
Pages						

Answer: _____

✓- ✓ ✓+

Answer: _____

✓- ✓ ✓+

A-13

Daily Math Puzzlers Continued

3. Tyree wants to share three large cookies at lunch. He doesn't have enough for all his friends, so he decides to break them in half. If he eats a half cookie himself, how many friends can also have a half?

Answer: _____

✓- ✓ ✓+

4. Shelly put five gold stickers on a page in her coloring book. She added six silver stickers and seven red stickers. Does she have an even or an odd number of stickers in her coloring book?

Answer: _____

✓- ✓ ✓+

A-13

Daily Math Puzzlers

Name _____

Try to solve each problem by yourself, and then we will work on them together. Be sure to show your work using pictures, words, or numbers.

1. Jacob lost his first tooth on February 7th. He lost another one exactly 2 weeks later. On what day did he lose the 2nd tooth?

Answer: _____

✓-   ✓   ✓+

2. The houses on Markam Street were numbered as shown below. If the rest of the houses follow the same pattern, what would be the number on the 7th house?

48   52   56   60

Answer: _____

✓-   ✓   ✓+

A-14
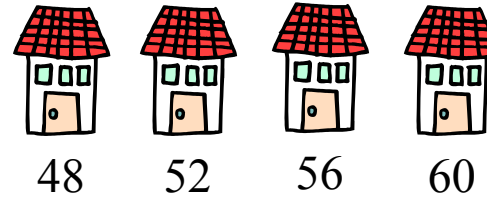
Daily Math Puzzlers Continued

3. Jill surveyed her friends to find out what kind of juice they like. She tallied her results. How many more people like orange juice than pineapple juice?

Apple	卌 卌 ‖
Orange	卌 卌 卌 ‖‖
Pineapple	卌	

Answer: _____

✓-   ✓   ✓+

4. Diana needs to sew some lace around a square baby blanket. If the blanket is 3 feet long on each edge, how many feet of lace does she need to buy?
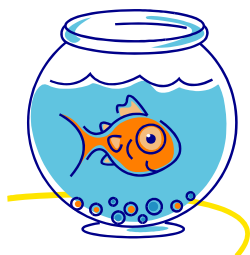
Answer: _____

✓-   ✓   ✓+

Daily Math Puzzlers

Name _____

Try to solve each problem by yourself, and then we will work on them together. Be sure to show your work using pictures, words, or numbers.

1. Maria noticed that there were 6 fish in one bowl and 12 fish in another bowl. How many fish must she move to have an equal number in each bowl? How many fish will end up in each bowl?
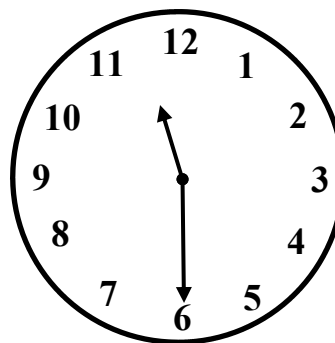
2. Victor's class eats lunch at quarter past twelve. He looked at his watch and saw the time below. How much time does he have until lunch?
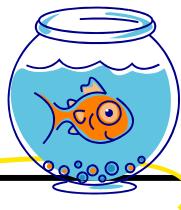

Move: _____ **Each Bowl:_____**

✓- ✓ ✓+

Answer: _____

✓- ✓ ✓+

A-15

95

Daily Math Puzzlers Continued

3. Patrick has three quarters, one dime, and two nickels. Damon has five dimes, two quarters, and three nickels. Who has more money?

4. Grace asked her friends how many books they read over the summer and made a chart. Who read at least five books?

Name	Books
Sue	4
Joe	5
Lee	3
Amy	6
Bill	2
Pam	2

Answer: _____

✓- ✓ ✓+
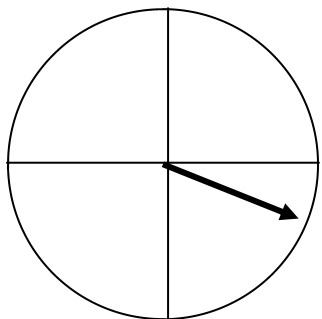
Answer: _____

✓- ✓ ✓+

A-15

Daily Math Puzzlers

Name _____

Try to solve each problem by yourself, and then we will work on them together. Be sure to show your work using pictures, words, or numbers.

1. Bryan's game spinner was $\frac{1}{2}$ red, $\frac{1}{4}$ blue, and $\frac{1}{4}$ yellow. Which color is he most likely to spin?

Answer: _____

✓-   ✓   ✓+

2. Nine children are lined up to ride the Ferris Wheel. Some are girls, and some are boys. Every other child is a girl. The first student in line is a boy. Is the last student in line a boy or a girl? Show how you know.

Answer: _____

✓-   ✓   ✓+

A-16

97

Daily Math Puzzlers Continued

3. Apples cost 50¢ each. Grapes cost $2.75 per pound. Nancy bought 4 apples and one pound of grapes. She paid with a $5 bill. How much change did she get back?

Answer: _____

✓- ✓ ✓+

4. Albert put an apple and a banana on a kitchen scale to weigh them. The total weight was 15 ounces. Then he took the apple off the scale and saw that banana was 9 ounces. How much does the apple weigh?

Answer: _____

✓- ✓ ✓+

A-16

Daily Math Puzzlers

Name _____

Try to solve each problem by yourself, and then we will work on them together. Be sure to show your work using pictures, words, or numbers.

1. Sasha and Ebony were the first students on the bus. Three more got on at the next stop. Then five more got on a few minutes later. At the last stop, two students got off the bus. How many remained on the bus?

2. Ben's team started baseball practice at quarter to eleven. His team finished practicing at noon. Draw hands on the clocks to show the two times. How long did his team practice?

Answer: _____

✓-   ✓   ✓+

Answer: _____

✓-   ✓   ✓+

A-17
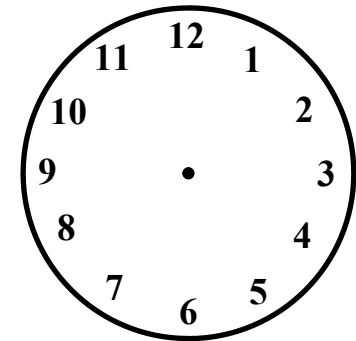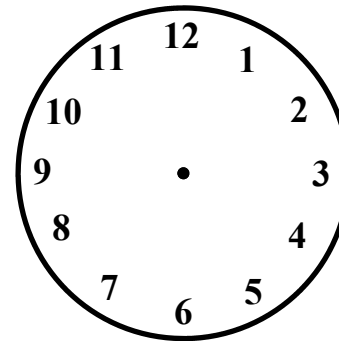
Daily Math Puzzlers Continued

3. Garth asked his friends what kind of apple they liked best. He made a picture graph of the results. How many friends did he survey in all?

Granny Smith	🍎 🍎 🍎 🍎 🍎
Red Delicious	🍎 🍎 🍎 🍎
Jonagold	🍎 🍎 🍎

🍎 = 2 students

Answer: _____

✓-   ✓   ✓+

4. Mrs. Johnson's class was collecting money for a class pet. A hamster is $6.50. The class has collected 8 quarters, 2 dollars, and seven dimes. How much more money do they need?

Answer: _____

✓-   ✓   ✓+

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1. Kim's class took a survey to see how many pets each student had. They made a line plot to show the data. How many students have at least 3 pets?

```
            X
            X   X
    X       X   X
    X       X   X   X
    X   X   X   X   X
  _____
    0   1   2   3   4
```
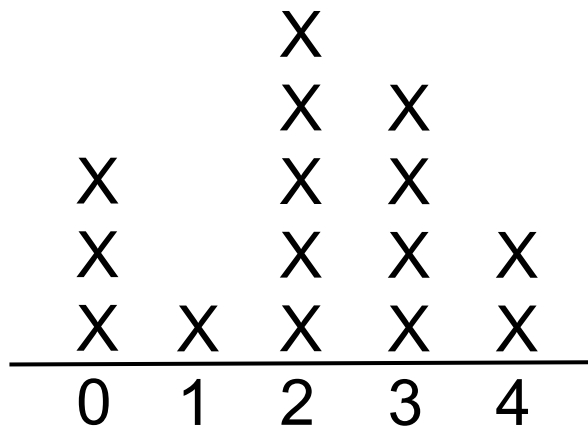
Answer: _____

✓-   ✓   ✓+

2. Santino is thinking of a secret number. If you subtract 4 from his number, the answer is 9. If you add 5 to the secret number, the answer is 18. What is Santino's number?

Answer: _____

✓-   ✓   ✓+

A-18

Daily Math Puzzlers Continued

3. Mary, Annie, and Kara all have puppies. Mary's puppy is the biggest. Annie does not have the smallest puppy. Which puppy belongs to which girl?

1

2

3

Answer: _____

✓-　　✓　　✓+
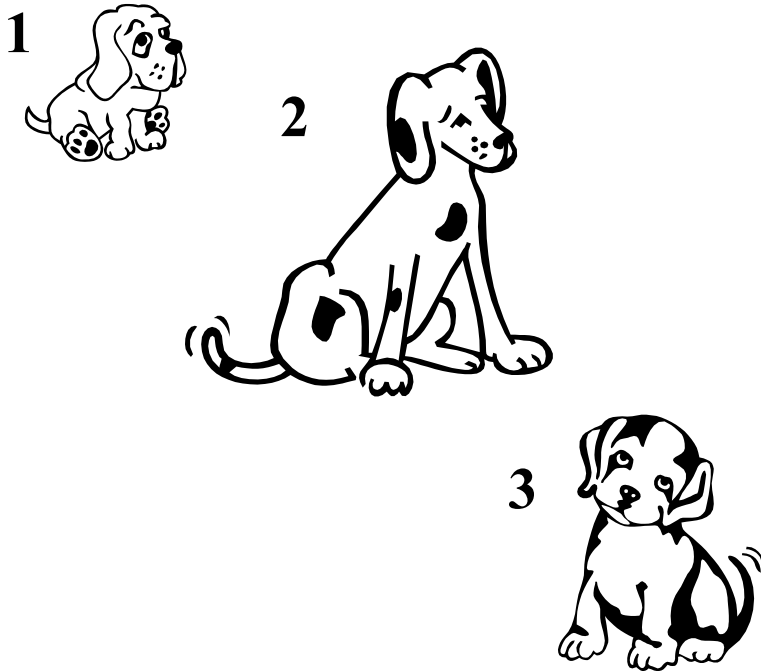
4. The temperature early in the morning was 42°F. By noon it had risen 8°F. Later that afternoon it had risen another 5°F before starting to drop. What was the high temperature for the day?

Answer: _____

✓-　　✓　　✓+

A-18

Daily Math Puzzlers

Name _____

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1. Greg and Julie put their money together to buy their mother some roses. Greg had $4.92 and Julie had $3.48. The roses cost $12.00. How much more money will they need to buy the flowers?

2. The New Year's Eve party started at half past 10 and went until midnight. How long did the party last? Draw the hands on the clocks below to help you find the answer.

Answer: _____

✓-   ✓   ✓+

Answer: _____

✓-   ✓   ✓+

A-19

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Daily Math Puzzlers Continued

3. Randal needed to make a fence for his garden. His square garden measured 6 feet on each side. He bought 18 feet of fence material. Will he have enough? Show how you know.

4. Mrs. Arnold's class took a survey to see which animal everyone liked best. Six students like lions, twelve students liked zebras, and five students liked bears. Which animal had only half as many votes as zebras? Color the bar graph to find out.
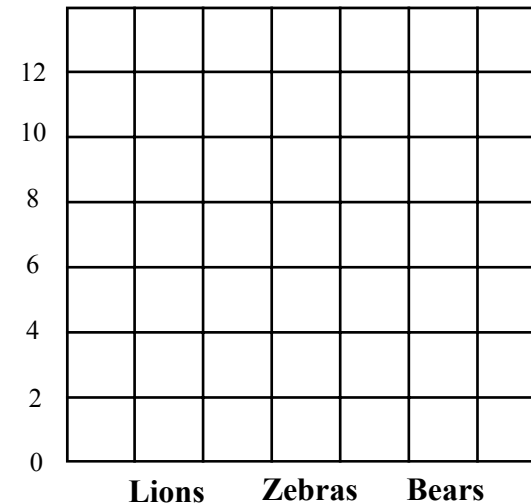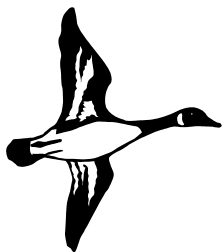
```
12 |___|___|___|___|___|___|
10 |___|___|___|___|___|___|
 8 |___|___|___|___|___|___|
 6 |___|___|___|___|___|___|
 4 |___|___|___|___|___|___|
 2 |___|___|___|___|___|___|
 0 |___|___|___|___|___|___|
     Lions   Zebras   Bears
```

Answer: _____

✓-   ✓   ✓+

Answer: _____
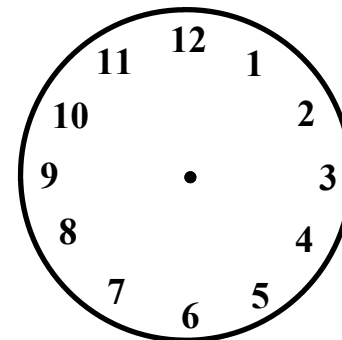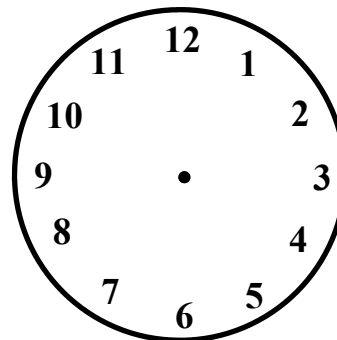
✓-   ✓   ✓+

A-19

Daily Math Puzzlers

Name _____

Try to solve each problem by yourself, and then we will work on them together. Be sure to show your work using pictures, words, or numbers.

1. Maribel saw some geese flying overhead in a large V shape. There was 1 goose at the front of the V and 4 geese in each of the 2 lines behind the leader. How many geese did she count in all?

Answer: _____

✓- ✓ ✓+

2. Dominic and Jake each ate $\frac{1}{4}$ of the pizza below. Then Fred ate 1 slice. How many slices were left to take home?

Answer: _____

✓- ✓ ✓+

A-20
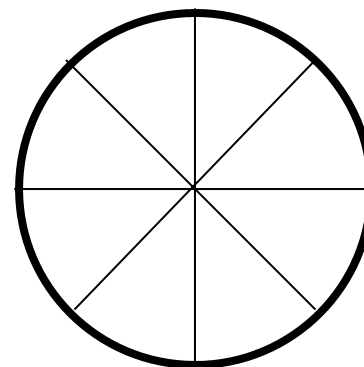
3. Sharon's mother took her children to the circus. Sharon is 7 years old, her sister just turned 4, and her brother is still a baby. How much money did she pay for tickets?

Circus Tickets

Adults	$6.25
Children (2-16)	$4.50
Children under 2	Free

Answer: _____

✓-   ✓   ✓+

4. Gary asked Joseph to guess how many marbles he was hiding in his hand. Gary said that if you doubled the number of marbles and added 4 more, there would be 10 marbles. How many marbles is he hiding?

Answer: _____
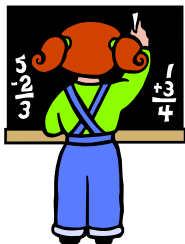
✓-   ✓   ✓+

A-20

Daily Math Puzzlers

Name _____

Try to solve each problem by yourself, and then we will work on them together. Be sure to show your work using pictures, words, or numbers.

1.

Answer: _____

✓-   ✓   ✓+

2.

Answer: _____

✓-   ✓   ✓+

Daily Math Puzzlers Continued

3.

Answer: _____

✓- ✓ ✓+

4.

Answer: _____

✓- ✓ ✓+

Daily Math Puzzler Program

Record Keeping

If you want to track the progress of your class over time, there are a number of tracking sheets available. Read on for a brief overview of each Record Keeping form and suggestions for how to use it with your class. For easy access, keep copies of these forms in a 3-ring notebook.

1. **Activity Page Tracking Sheet (Page 110)**
   Copies Needed: One per class
   Purpose: To keep track of which Activity Pages have been used
   Suggestions: Record the date you use each page and make notes about any difficulties your students experienced. You'll be able to tell at a glance which pages are still available for use.

2. **Student Activity Page Record (Page 111)**
   Copies Needed: One per student
   Purpose: To record individual progress throughout the program
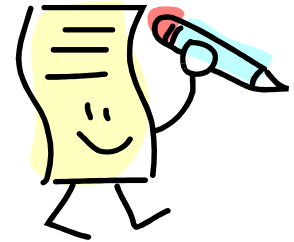   *Suggestions:* Record the Activity Page letter and number in the first column. Then record a ✓-, ✓, or ✓+ for each problem on the worksheet. Use the comments section to notate any difficulties experienced by the student or improvements made over time. At the end of the year, you can place the Student Activity Page Record in the student's portfolio or include it with other assessment documentation.
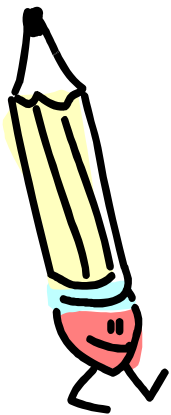
3. **Class Activity Page Record (Page 112)**
   Copies Needed: One per class for each Activity Page
   Purpose: To identify trends in student performance
   Suggestions: Before duplicating the Class Activity Page, list your students' names in the first column. Then duplicate one copy of the recording sheet for each Activity Page. Each day record a ✓-, ✓, or ✓+ for each student in the column under that day's problem number. At the end of the week, you'll be able to see at a glance which problems were difficult and which ones were easy for your students, allowing you to provide additional instruction on some topics as needed.

Activity Page Tracking Sheet

Activity Page	Date of Use	Notes
A-1		
A-2		
A-3		
A-4		
A-5		
A-6		
A-7		
A-8		
A-9		
A-10		
A-11		
A-12		
A-13		
A-14		
A-15		
A-16		
A-17		
A-18		
A-19		
A-20		

Student Activity Page Record

Name _____

Activity Page	Word Problems				Comments
	1	2	3	4	

Class Activity Page Record

Activity Page Number _____   Date _____

Name	Word Problems				Comments
	1	**2**	**3**	**4**	
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					

Answer Key
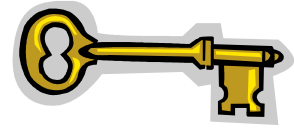
Activity Page	Problem #1	Problem #2	Problem #3	Problem #4
A-1	5 cookies	22 legs	6 pieces	15¢
A-2	No	Odd	16 blocks	31°F
A-3	5 more	24 shells	3 shelves	24 rolls
A-4	14 pages	1Q, 1D, 2P	20 inches	6:00
A-5	14 grapes	5 pages	50¢	E: 2 R:2
A-6	No	15¢	13 years old	6 shells
A-7	6 choices	4 cups	1 hr 30 min	45¢
A-8	8 apples	5 rows	3 miles	3 hours
A-9	20 minutes	6 people	13 eggs	$2.00
A-10	$32	1 day left	9 sprouts	85¢
A-11	Darryl	Tara	7 people	3 quarters
A-12	2 more	Yes	4 donuts	25 minutes
A-13	6 people	No	5 friends	Even
A-14	Feb 21st	72	13 people	12 feet
A-15	M:3 EB:9	45 minutes	Damon	Amy & Joe
A-16	Red	Boy	25¢	6 ounces
A-17	8 students	1 hr 15 min	22 students	$1.80
A-18	6 students	13	1K, 2M, 3A	55°F
A-19	$3.60	1 hr 30 min	No	Lions
A-20	9 geese	3 slices	$15.25	3 marbles

Teaching Resources Website
www.lauracandler.com

Free! Classroom Economy Power Pack when you sign up for the email newsletter!
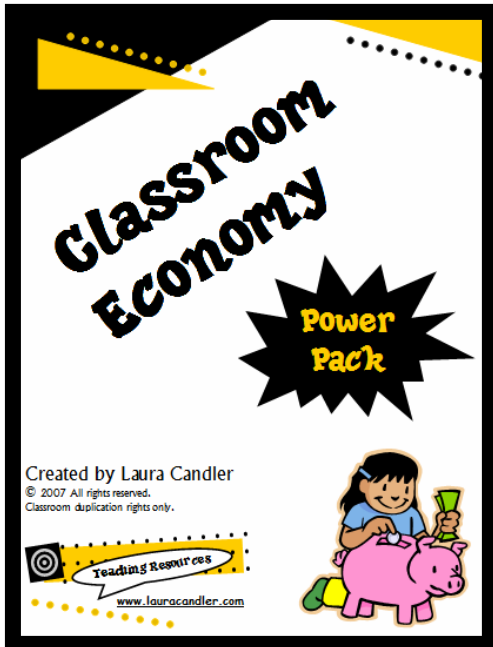
Powerful Resources for Teachers!

- **Free** Blackline masters and activity sheets
- Lesson plans and teaching strategies
- Cooperative learning methods
- Classroom management and motivation
- Literacy and Literature Circle strategies

All new Power Packs . . .
Blackline masters, directions, and
teaching tips in one powerful package!

NEW!

- **Classroom Goal Setting Power Pack**
- **Daily Math Puzzlers**
- **Math Stations for Middle Grades**

Workshop Information

- Invite Laura to your school or district to energize your teachers with powerful strategies!
- Workshops available:
  - * The Dynamic Duo:
    Putting the Punch in Math Instruction
  - * Literature Circles for All Learners
- Teachers walk away with specific strategies to implement in their classrooms the next day.
- Contact Laura for more information: lauracandler@att.net