Introduction

Brain-compatible maths activities are fun and exciting! These activities are often hands on and involve partners, group work and class movement, which many students enjoy. Students frequently say that mathematics is difficult for them. Therefore, as an educator, it is your job to choose materials that are likely to be effective in light of current research about how the brain learns mathematics. This book is filled with activities that are centred on brain research and that are structured to maximise the brain's learning potential.

The activities in this book are designed using a brain-compatible lesson plan format. There are nine components of the plan, but not all nine are necessary for every lesson. Those components that are most relevant to the learning objective should be emphasised:

1. anticipatory set
2. learning objective
3. purpose
4. input
5. modelling
6. checking for understanding
7. guided practice
8. closure
9. independent practice

Each of the components is described in detail in the book titled *How the Brain Learns Mathematics.* Refer to this book for more brain-compatible maths research and other teaching strategies. When using the activities in this book, read through the activity first. Then begin preparations for the lesson. It is best to follow the lesson plan format to ensure maximum learning potential. However, meeting the needs of each student in your classroom is always first and foremost. Be flexible to ensure that all students are learning. Last, have fun! These activities may force you to step out of your comfort zone. Embrace the change, and watch your students' brains at work.

COUNTING SETS

Objective

Students will produce sets of objects when given a specific number.

Anticipatory Set

Show students a box of crayons. Explain how crayons come in sets of a given number. Explain that other products, such as packs of chewing gum and boxes of pencils, also come in sets. Explain that the workers who pack these items need to count how many items go in each set.

Purpose

Tell students that they will create sets of objects for a given number.

Input

Remind students that when they count objects for a set, they should count each item only once.

Modelling

Show a paper cup with the number 5 written on it. Arrange several small manipulatives (e.g. counters, buttons, or dried beans) on a table. Count out five manipulatives, and place them in the cup. Then show students a paper cup with the number *7* written on it. Count out seven manipulatives, and place them in that cup.

Checking for Understanding

Make sure students understand how to count objects using one-to-one correspondence. Give each student six crayons, and have them count them for you.

Guided Practice

Divide the class into groups of three or four students. For each group, write a different numeral on each of five separate paper cups. Choose numbers appropriate for your class.

Give each group a set of paper cups and several small manipulatives. Tell groups of students to count the correct number of objects for each cup. When students are finished, have students check to make sure that they have counted correctly by recounting the manipulatives in each cup.

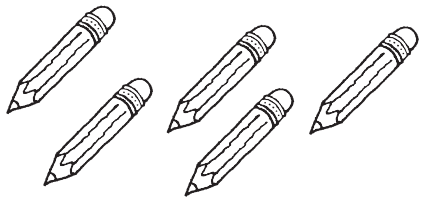
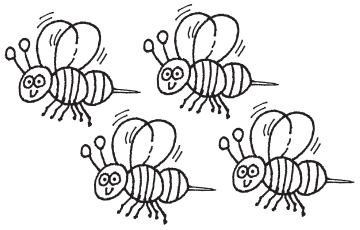
Closure

Ask students to think about why it is important to make sure they count each object only once when counting objects for a set. Have them dictate or write their responses in their maths journals.

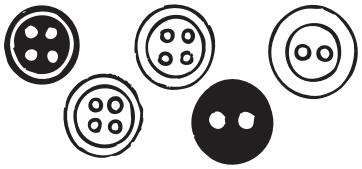
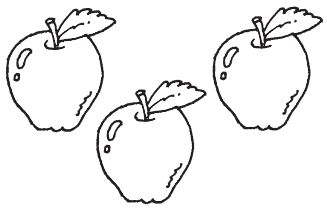
Name _____ Date _____

More or Less

Directions: Draw a set of objects that has **more** than the given set.

A		This set has more.
B		This set has more.

Directions: Draw a set of objects that has **less** than the given set.

C		This set has less.
D		This set has less.

FACT FAMILY TREE HOUSE

Objective

Students will learn about fact families for addition and subtraction.

Anticipatory Set

Remember Tarzan? Give a Tarzan-like yodel, and pretend to swing through the trees. Once you have students' attention, ask them to think about what it would be like to live in the trees. What kind of house would they have in the trees? Would they live with their family in a tree house?

Purpose

Tell students they will learn about fact families for addition and subtraction by using a tree house graphic organiser.

Input

Tell students that there are three numbers in a fact family. Use a human family as an example. Every time the family sits at the table, there is always the same number of people in the family—no matter where the family members sit. With addition fact families, it doesn't matter where the addends are placed; the sum is always the same.

Demonstrate using a simple addition equation. Show students how the sum remains the same when the addends are reversed.

Modelling

Make a transparency of the **Fact Family Tree House reproducible (page 51).** Model how to practise several addition fact families inside the graphic organiser. Think aloud as you complete the organiser.

Guided Practice

Write several groups of numbers on the board. Provide each student with a copy of the Fact Family Tree House reproducible. Prompt students to complete several examples of fact families. Circulate around the room while students are working, and assist as needed. Consider allowing students to work together for additional support.

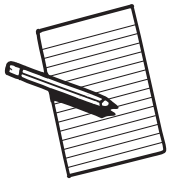
Closure

Prompt students to write in their maths journals about what they learned. Use the prompts from page 179.

Name _____ Date _____

Guide to Problem Solving

Directions: Complete the graphic organiser using a maths problem.

Understand	Plan
What do you know? What do you have to do? 	How will you do it? 
Solve	**Check**
What is the answer? 	How can you check your work? Is it correct?