MEMORY BOX

Purpose

Memory Box encourages students to tap into their prior knowledge and let the contents of their memories flow freely onto paper, where they are collected to become a set of meaningful visual and written notes. As students create Memory Boxes, they are reflecting on what has been taught by accessing new and prior knowledge.

Formative Assessment Connection: By freely reflecting on and recalling what they've learned, students develop a clear picture of their understanding and thinking at any given moment.

Overview

The Memory Box technique is used to prompt students to think about a topic that has been presented previously. Whether students are asked to recall information from earlier in the day or earlier in the marking period, the process is the same. With their textbooks and notebooks put aside and armed only with an empty box drawn on a blank sheet of paper, students retrieve as much information as they can from their memories. Students explore what they know and remember about a topic, filling their Memory Boxes with words, numbers, symbols, and doodles.

Students' unique Memory Boxes can be

- Kept as a set of personal and creative notes.
- Compared and contrasted in pairs.
- Used as the basis for a competitive review game (see Math Review Games on pp. 164–170).
- Used to focus their attention on the big or important ideas related to the topic (see Most Valuable Point on pp. 30–31).

Building Common Core Thinking

Memory Box prompts deeper reflection and enhances students' "notemaking" (i.e., their ability to actively make meaningful notes). Students are encouraged to recall all that they can about a concept by identifying relationships, noting patterns, collecting details, and organizing information to support or critique arguments. Memory Box supports the following Standards for Mathematical Practice (MP):

- *(MP 1) Sense:* thinking deeply about a concept
- *(MP 3) Argument:* using assumptions and previously established results
- *(MP 7) Structure:* discerning patterns and structure

Steps

1. Present or review a topic with students.
2. Allow students time (usually 3–5 minutes) to take new notes or to review previously taken notes.
3. Have students put away their textbooks and notebooks.
4. Distribute copies of (or have students draw) a blank Memory Box.

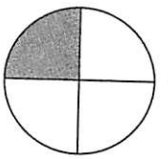
5. Prompt students to explore their memories and retrieve any relevant information about the topic.
6. Encourage students to be creative as they fill their Memory Boxes with words and pictures.

Examples

Figure 1.15 Student's Memory Box for *Fractions*

Fractions

Fractions help you break things up equally



$= \frac{1}{4}$

Part of a whole

$\frac{\text{numerator}}{\text{denominator}}$ $\frac{\text{parts under consideration}}{\text{total number of parts in whole}}$

If you add and subtract a fraction the denominator needs to be the same.

$$\frac{1}{2}+\frac{2}{8}=\frac{4}{8}+\frac{2}{8}=\frac{6}{8}$$

always change a fraction into its simplest form so . . . $\frac{6}{8} = \frac{3}{4}$

a fraction is another way of writing a division problem

Types of fractions:

Proper: $\frac{1}{2}, \frac{2}{5}$ Mixed improper: $1\frac{1}{2}, 2\frac{2}{4}, \frac{5}{4}, \frac{6}{5}$

Common denominator

Equivalent fractions $\frac{1}{2}=\frac{2}{4}=\frac{3}{6}$

Fractions can be decimals

Figure 1.16 Student's Memory Box for *Circles and Ellipses*