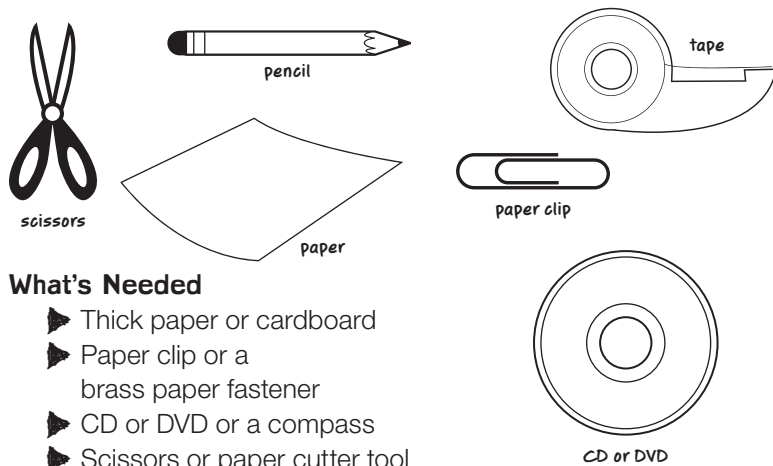


Project— SNEAKY FRACTION QUIZZER

Make your own Sneaky Fraction Quizzer to practice your fraction calculating skills. (And later, give it away to a young math student.)



What's Needed

- ▶ Thick paper or cardboard
- ▶ Paper clip or a brass paper fastener
- ▶ CD or DVD or a compass
- ▶ Scissors or paper cutter tool
- ▶ Paper
- ▶ Pencil
- ▶ Transparent tape

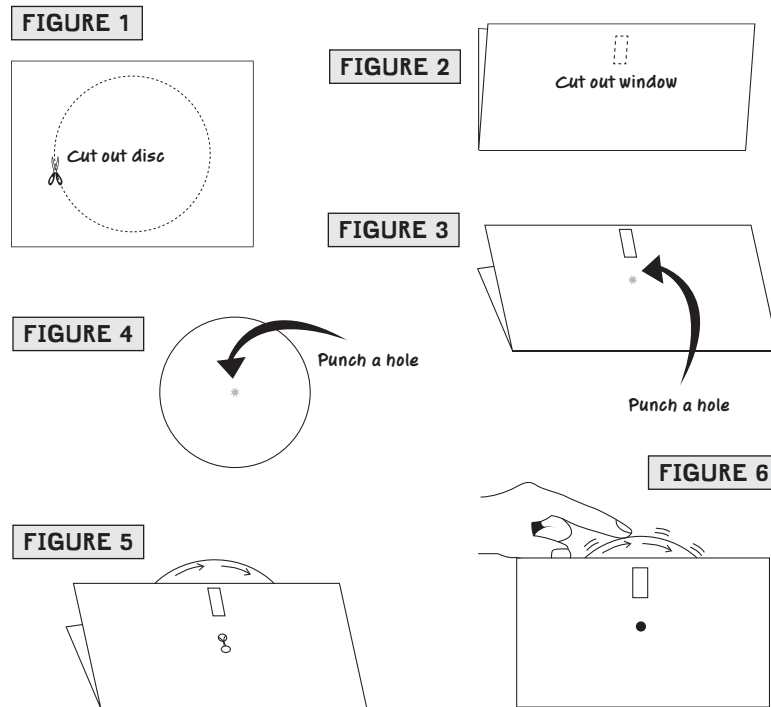
You can use the illustrations on the next pages as a guide or photocopy the pages, paste them on the cardboard, and cut out the shapes shown in **FIGURES 1** through **6**. First, trace a disc the size of a CD or DVD, or use a compass to create a circle with a diameter of $4\frac{3}{4}$ inches, as shown in **FIGURE 1**.

Next, cut out the rectangular cover shown in **FIGURE 2**, including the “window” hole. Or, you can run a pen firmly along the dotted lines to cut away the window section.

Fold the cover in half and puncture a hole in the front as shown in **FIGURE 3**. Also puncture a hole in the center of the disc, as shown in **FIGURE 4**.

Place the disc in the cover and see how the upper one allows you to view the solution when its rectangular opening is properly dialed, as shown in **FIGURE 5**. Carefully push the brass paper fastener or paper clip from the outside of the cover and through the disc.

Dial the disc around to match an equation and view the answer through the window. See **FIGURE 6**.



SNEAKY FRACTIONS

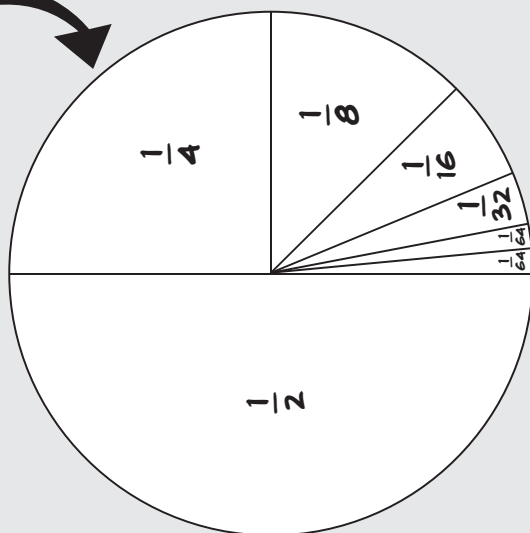
Fractions are
part of a whole.

ADDED
MULTIPLIED
DIVIDED

cut along dotted line



Turn the
dial and test
your fraction
skills!



SNEAKY MATH:
A Graphic Primer with Projects

ARITHMETIC

+ ADDING FRACTIONS

$$\frac{1}{4} + \frac{2}{3} \quad \text{Find a common denominator.}$$

$$\frac{3}{12} + \frac{8}{12} = \frac{11}{12}$$

Just add the numerators. You can subtract this way, too!



X MULTIPLYING FRACTIONS

This is easy! Just multiply the numerators and the denominators.

$$\frac{3}{4} \times \frac{1}{3} = \frac{3 \times 1}{4 \times 3} = \frac{3}{12} = \frac{1}{4}$$

Reduces to



÷ DIVIDING FRACTIONS

$$\frac{1}{5} \div \frac{2}{3} = \frac{1}{5} \times \frac{3}{2} = \frac{1 \times 3}{5 \times 2} = \frac{3}{10}$$

Flip

Just flip the second fraction and multiply.



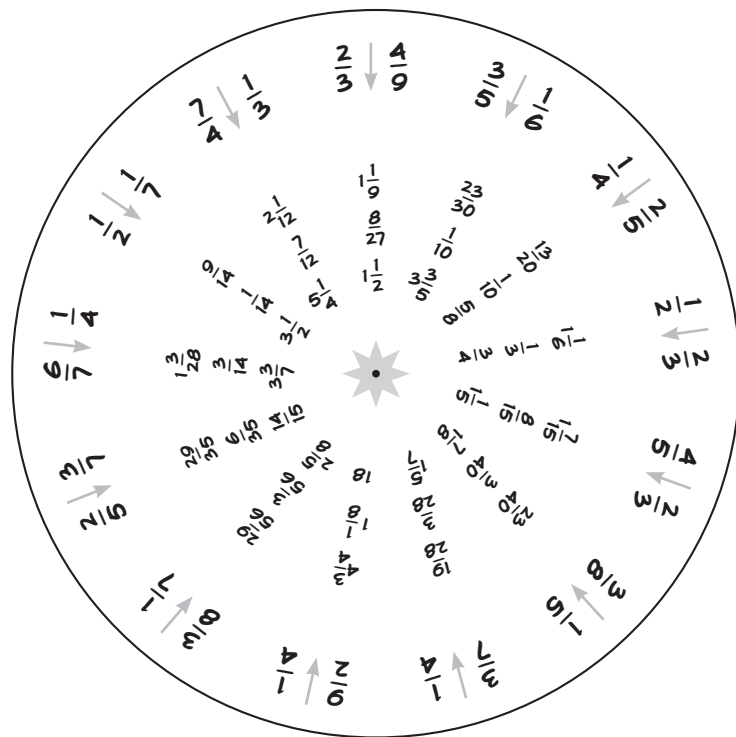
Convert a MIXED FRACTION into an IMPROPER FRACTION

$$3\frac{1}{4} = 3\frac{1}{4} + \frac{12}{4} = \frac{13}{4}$$

$$\left(\frac{3 \times 4 + 1}{4} \right)$$

Convert an IMPROPER FRACTION into a MIXED FRACTION

$$1\frac{5}{2} = 2\frac{7.5}{14} = 7\frac{1}{2}$$



MATH CARD CONSTRUCTION TIPS

In case you do not have (or want to use) a knife or a brass paper fastener, here's how to quickly cut out the window of the math card with scissors and use a paper clip to attach the disc.

You can cut out the window section of the math card with scissors. Start at a side closest to the section to remove, as shown in **FIGURE 1**.



FIGURE 1

To avoid using a knife when cutting a window in the math cards, just use scissors and cut from one side.

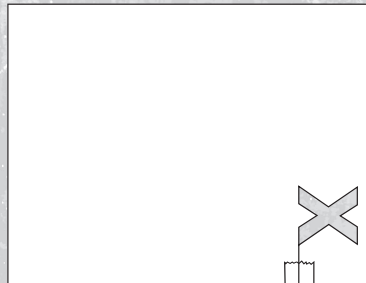
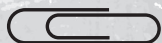


FIGURE 2

Apply transparent tape across the slit.

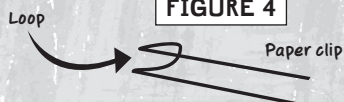
Then apply a thin layer of transparent tape to the inside of the card to secure the math card. See **FIGURE 2**.

FIGURE 3



If you do not want to use a brass paper fastener, you can bend a paper clip and use it to secure the disc inside the math card.

FIGURE 4



Bend a paper clip into this shape with a $\frac{1}{4}$ -inch loop bent over on one end.

FIGURE 3 shows a paper clip, which, when bent straight with a small loop at one end, can substitute for a paper fastener. See **FIGURE 4**.

Simply push the two ends of the paper clip through the hole on the front of the math card and also through the disc. See **FIGURE 5**.

Secure the two ends to the back of the disc with tape, as shown in **FIGURE 6**.

Now the paper clip allows you to turn the disc around freely. See **FIGURE 7**.

FIGURE 5

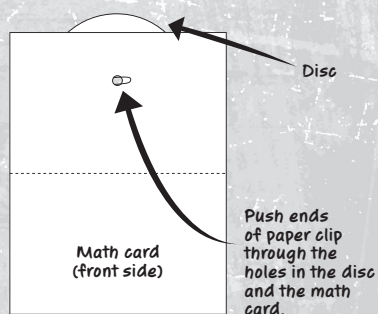


FIGURE 6

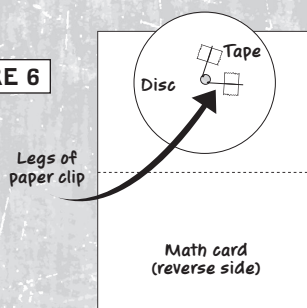


FIGURE 7

Now the paper clip acts as a center hub for the math card's disc.

