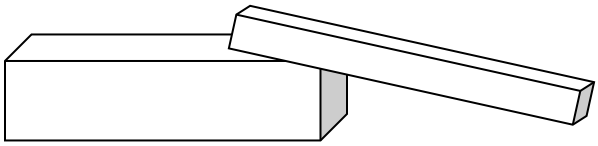
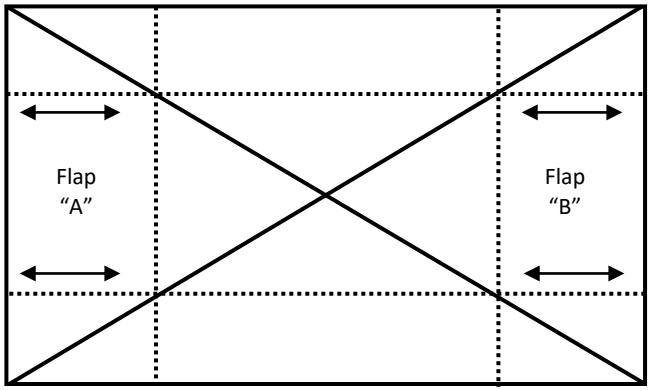
Folder Boxes

Creative Containers that Start Flat and Fill with Potential!



Don't throw away those used folders or greeting cards! They can be used to teach math, and the result is a great box that students will love! Decorate the box, present it as a gift, or use it for storage. The choice is yours!



Topics
Area, Volume, 3-D Shapes, Measurement, Geometry

Materials
- ✓Folders, greeting cards, or cardstock
- ✓Ruler
- ✓Pencil or pen
- ✓Scissors
- ✓Optional: tape, markers, decorations

Learning Standards
CCSS Math: Geometry, Measurement & Data
5.MD.C.5.B
5.MD.C.3
6.G.A.2
7.G.B.6

To Do and Notice

1. Assembly of Box Top: Using a ruler or straight edge, draw two diagonal lines onto the back of the folder, greeting card, or cardstock, from corner to corner.
2. Fold in each of the 4 edges to the center of the "X" (shown above).
3. Make 4 cuts (as shown by the arrows) along the folds to the diagonal lines.
4. The rectangle in the center created by the folds will become the box top.
5. Fold the sides up and the tabs in, creating a box shape.
6. Fold the flaps up and over the tabs, securing with tape if desired.
7. Assembly of Box Bottom: Follow the steps to make the box top, except when folding each of the 4 edges to the center (step 2), fold *slightly beyond* the "X" in each case. This step reduces the area of the box bottom
8. Slide the box top over the box bottom. Optional: decorate the box.

The Math Behind the Activity
The process of building a box from a flat 2D rectangle to a 3D rectangular solid builds spatial thinking skills and also provides an opportunity to measure both area (L x W; 2D surface space) and volume (L x W x H; 3D capacity of the box). If students begin with rectangles of the same area but different dimensions, they will find that their volumes are different. Careful data collection and analysis will reveal that the closer the original rectangle is to a square, the more volume the box will have.

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