

# Make-A-Mole Mascot

Extra Credit Activity due the week of

Monday April 1<sup>st</sup> - Friday April 5<sup>th</sup>

No Partial Credit: All or none

*1 Mole Mascot = 1 Quiz OMIT*

## Introduction

Make a Mole? What is a mole? The dictionary defines a mole as “a small, insectivorous, burrowing mammal having a thick-set body with silky light-brown to dark-gray fur, rudimentary eyes, tough muzzles, and strong forefeet for digging and usually living underground.” Another definition of a mole is “a small growth on the human skin.” The term “mole” also has great significance in chemistry. A molecular mole represents a unit of measure that is a collection of  $6.022 \times 10^{23}$  particles. The dictionary defines this type of mole as “the amount of a substance that has a weight in grams equal to the substance’s molecular weight.”

With this activity, you’ll have some fun and use your creativity to design your own mole. Although the result will look like a small mammal, in chemistry you’ll know it represents the  $6.022 \times 10^{23}$ !

## Chemical Concept

A **mole** is defined as  $6.02214076 \times 10^{23}$  of some **chemical** unit, be it atoms, molecules, ions, or others. The **mole** is a convenient unit to use because of the great number of atoms, molecules, or others in any substance.

## Materials

Eyes, 2

Fabric or felt (for body and fee)\*

Fiberfill stuffing

Glue (fabric glue or Elmer’s school glue)

Mole pattern

Pins

Pom pom (for nose)

Scissors

Needle and thread (or sewing machine)

Yarn, ~6 inches (for tail)

\*Any fabric can be used, but the best fabrics for stuffed animals are soft, stretchy fabrics such as sweatshirt fleece, velour, felt, or cotton knits. Obtain fabric to personalize your mole, if desired.

## Procedure

### General Sewing Hints

1. All pattern pieces include a  $\frac{1}{4}$ "-seam allowance. Use a double piece of thread when sewing the mole.
2. When you begin sewing, remember to have the fabric surfaces that you want on the outside (referred to as the right side) facing each other since ultimately the mole will be turned inside out.

### Cutting the Fabric

1. Cut out the pattern pieces (side body, bottom belly, and feet) from the paper mole pattern. Be sure to also cut out the black notches as a protrusion from each piece – the notches are important for proper alignment when sewing the mole together.
2. Obtain fabric or felt for the side body pieces of your mole. Fold the fabric into a double layer. This will allow you to cut two identical pieces of fabric at once.
3. Lay the side body paper pattern on the double layer of fabric. Pin the pattern in place onto the fabric.
4. Cut out the side body pieces from the fabric, creating two mirror image pieces. Be sure to cut out the notches. Remove the pins.
5. Obtain fabric or felt for the bottom belly piece. Lay the bottom belly pattern on a single layer of fabric. Pin the pattern in place onto the fabric.
6. Cut out the belly piece from the fabric. Be sure to cut out the notches. Remove the pins.

### ***Attaching the Feet***

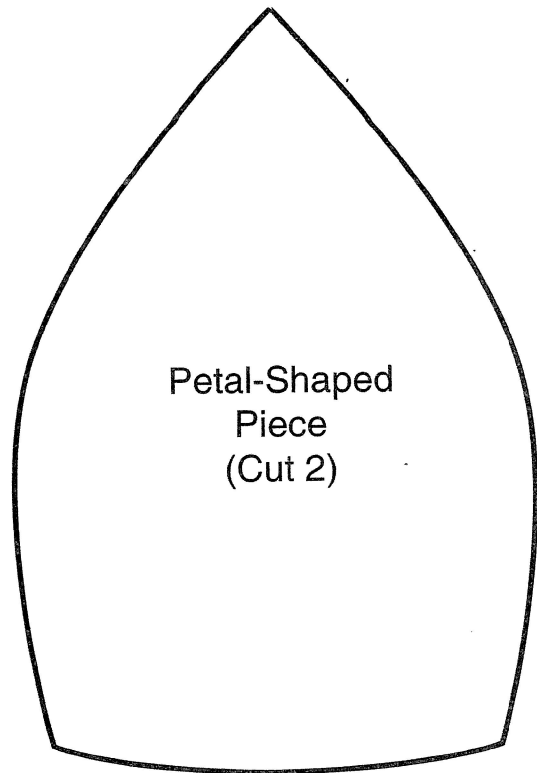
1. Place the belly piece on the table, right side (outside) up.
2. Place one drop of tacky fabric glue (or Elmer's school glue) on the edge of the belly pattern that is marked with a double notch.
3. Attach a claw to the foot with claws pointing toward the midline and right side up.
4. Repeat for all four feet. Allow the glue to dry.
5. Alternatively, sew the claws in place on the feet (or pin them and sew them when sewing the mole).

### ***Sewing the Mole***

1. Place the two side body pieces together with right (outside) sides together. Pin the two pieces together.
2. Sew the two side body pieces together from nose to tail along the spin (top edge) of the mole.
3. Locate notches A and B on the sewn body piece. Pin the belly piece to the body pieces with right sides together and feet inside.
4. Sew all the way around the body (the long way) from notch A to notch B as shown on the dotted line on the pattern. *Note:* Leave the space between A and B open on one side as the stuffing hole.
5. *Optional:* If desired, attach the tail from the inside and sew it in place. Alternately, the tail can be attached after the mole is sewn.
6. Remove all pins and turn the mole right side (inside) out through the A to B gap. All seams will now be on the inside of the mole and the right side of the fabric should now be on the outside.
7. Stuff the mole with fiberfill stuffing. Be sure to pack the mole with plenty of stuffing, and especially to pack the legs and feet firmly as that will give the mole more stability.
8. Fold in the raw edges from A to B. Pin the edges together, and hand-stitch the seam from A to B closed.
9. Attach the eyes and pom pom or star-shaped nose with fabric glue, or by sewing.
10. Sew a yarn tail onto the mole, if a tail wasn't added in Step 5.
11. Tie a string with your name attached around your mole. No Name No Credit.

### Mole Pattern Tips

- Students can use any fabrics, but the best fabrics for stuffed animals are soft, stretchy fabrics such as sweatshirt fleece, velour, felt, or cotton knits. Have students bring in their own fabric or felt from home. Encourage creativity as students personalize their moles.
- A half yard of fabric is enough for 10 moles, so 1½ yards will make 30 moles. You may wish to supply fabric, needles, thread, and pins, to make this an in-class activity. Or you may distribute eyes, noses, tails, patterns, and stuffing and have students make their moles at home.
- The mole pattern supplied makes a mole of about 20 centimeters in length. Moles can be scaled down, or scaled up. To make a “Mini Mole,” reduce the size of the pattern on the copy machine. To make a “Mega Mole”, cut out the pieces from the mole pattern. Center each piece separately on a copier and enlarge (up to 200%). Mega Moles may need larger eyes—large buttons work well.
- Make a detachable (2-piece) mole to explain the difference between a 1 M and 0.5 M solution. To make a 2-piece mole, make the mole as described in the student procedure, except when sewing the mole, sew the three big pieces completely together (right side in), without leaving a section (A to B) not sewed. Use scissors to cut the mole in half, so there is a front “head” piece and a back “tail” piece. Cut two petal-shaped pieces of fabric to fit the open cavities (see Figure A). Sew a petal-shaped piece of fabric into the body cavity on each side, leaving a gap through which you can invert the mole to get the seams inside. Stuff and hand-stitch each side of the mole, and use Velcro® to attach the two detachable parts.



**Figure A.** Optional Detachable Mole Piece

# Make-A-Mole Mole Pattern

Cut on the solid lines; include the notches.

Sew fabric on the dotted (1/4" seam) lines.

