



## Activity—Gelatin Model of Magma Intrusion

Activity adapted from Prentice Hall – *Inside Earth* by Roger Groom, Mount Tabor Middle School, Portland OR. Requires preparation the day before.

### Introduction

Students try to predict what will happen when clear a gelatin “Earth” gets injected with gooey chocolate “magma”. They record their predictions and observations on a worksheet.

### Objective:

Demonstrate formation of volcanic landforms, primarily intrusive. Students predict (hypothesize) what will happen. Students fill out worksheet and answer questions.

### Procedure:

The night before the activity—make a mold of gelatin – use gelatin rather than jello – it’s clear and it’s stiffer. Follow the regular directions on the gelatin package. I use a big tub for a demo and smaller containers for small groups.

Take an aluminum pie tin and punch a bunch of holes in it just big enough to fit the tip of a 10 – 20 cc syringe. Dip the gelatin mold into a big pot of hot water for a few seconds to loosen the edges, and then tip the mold on top of the aluminum pie tin. Support the pie tin above the surface of a desk with tubes, wood, etc. It should be tall enough to allow the entire length of the syringe to fit under the pie tin.

Suck up chocolate sauce into syringe and insert tip of syringe into one of the holes so that tip of syringe goes up into the gelatin mold.

Push the syringe and watch as the chocolate sauce forms a variety of volcanic landforms. This can be repeated as many times as possible in the different holes until gelatin mold breaks up.

If the chocolate sauce reaches the edge of the mold, it will form a ‘lava’ flow. Intrusive landforms include dikes and sills. Be sure to look at them from all angles. If you can crowd kids around the demo they can see it in action.

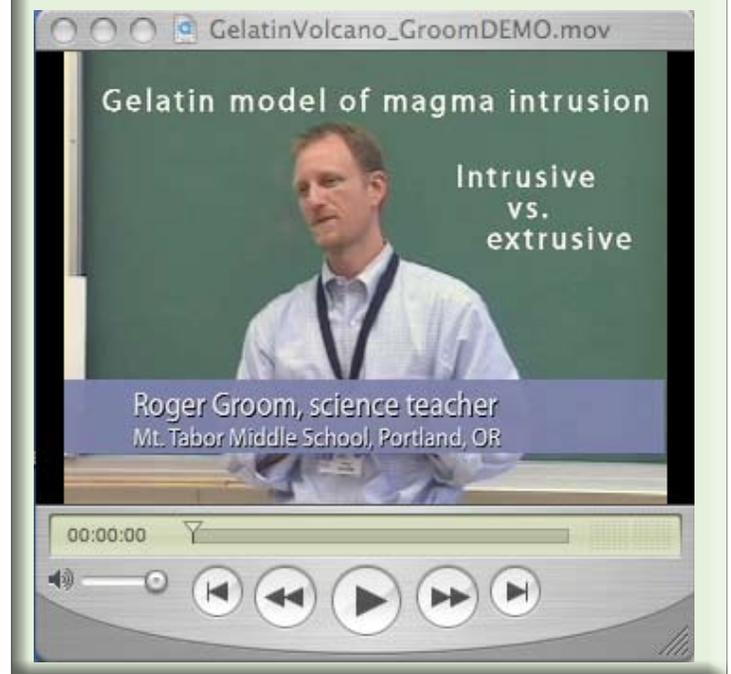
Chocolate sauce works well because it’s thick and very visible. Slight dilutions of it work too. One cool thing that happens is that it slowly creeps a bit even after you stop pushing on the syringe. When that’s very exciting is when it’s near the edge of the mold and the mold cracks and splits.

I also make extra Jello© (not gelatin) molds in small paper cups to eat afterwards, complete with extra chocolate sauce for ‘lava’ topping.

### Materials Needed:

- Gelatin mold of any size, the larger the better (but not too shallow for amount of gelatin. I sometimes make small student bowls, too)
- Syringe – the larger the better
- Aluminum pie plate, big enough to hold bottom of gelatin mold
- Vertical supports of pie tin (wood, tubes, paper towel tubes, etc.)
- Chocolate sauce
- Large tray to catch mess under whole apparatus
- Student worksheet (on following pages)

### RESOURCE MOVIE— Watch the video demo of Gelatin Model of Magma Intrusion:



### Analysis Questions:

Most answers rely on the experiment, but some require additional knowledge:

#5: Magma looks for the path of least resistance and will continue to move until it can’t move any further.

#6: It will go up to the interface and spread out horizontally. You can make one like this too to show as a demo.



Analysis Questions:

1. Describe how the magma moved through the model.  
Did the magma move straight up through the center of the model or did it branch off?

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2. Explain why you think the magma moved in this way.

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3. What knowledge or experience did you use to develop your prediction?  
How did the actual movement compare with your hypothesis?

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4. Were there differences in the direction the magma flowed when the syringe was inserted into different parts of the 'volcano'?

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5. How does what you observed in your model compare to the way that magma moves through real volcanoes?

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6. Predict and draw what would happen if you created a two-layer jello mold like this:

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