

Subject: Science

Grade: Fifth

Standard: # 2 The Nature of Science and Technology

**Key Concept:** Scientific investigations may take many different forms, including observing what things are like or what is happening somewhere, collecting specimens for analysis, and doing experiments. Investigations can focus on physical, biological and social questions.

**Generalization:** Observing the reactions of slime mold under certain conditions increases our understanding of this organism.

**Background:**

Students have been studying various living organisms. They are also familiar with designing simple experiments with more than one variable. They design their investigations to include the following: problem statement, hypothesis, materials, background, procedure, data, results, conclusions. For this lesson, students are divided into two tiers based on their ability to design and carry out simple investigations. Those who need more simple directions and structure should work in tier I. Those who can handle more complex directions and less structure should work in tier II.

The organism being investigated is slime mold (*Plasmodium*) and may be cultured from dead wood (sometimes takes a few months) or ordered from a scientific supply company, such as Carolina Biological Supply (much quicker). This is not a mold like you are used to seeing on spoiled food. It can move about freely and capture its food. As long as you feed it and keep it damp, it will survive indefinitely; if it gets contaminated with bacteria or other molds it won't. If you aren't familiar with slime mold, ***Creepy Crawlies and the Scientific Method*** by Sally Kneidel (ISBN:1-55591-118-8) is a good resource.

**Materials:** Slime mold, petri dishes and lids, filter paper cut to fit the dish, tweezers or forceps, oatmeal (flakes, not cooked). Each child working at a particular level may have a slime or you may only plan to have one per

group of students. While you may have multiple groups at a particular tier, you should try to have no more than three students to a group.

This lesson is tiered in *process* according to *readiness* .

**Tier I: *Basic/Grade Level***

Students working at this level will be investigating trying to find out if slime molds know where their food is, or do they just stumble on it. The question would be, “Will slime molds move faster toward their food than toward a designated spot with no food.” Specific directions for this investigation can be found on p. 77 of the *Creepy Crawlies* book, or you may write out your own directions. Be sure students are given clear, concise directions for the investigation. A table may be used to record data.

**Tier II: *Advanced***

Students at this tier will want to do a similar experiment, but one requiring more precision. Specifically, the question is, “At what distance will most of the slimes begin to move towards the food immediately?” Students will need to plan a way to investigate this idea and a table or chart to record data. The food will be one oatmeal flake. Using the *Creepy Crawlies* book will help you guide the students if you are not familiar with this investigation. **FYI:** Slimes will detect food and move all their protoplasm to it when the food is placed between 1.3-2.5 cm from the slime.

**Assessment:**

Assessment includes teacher observation and student interview during the investigations. In addition, a completed laboratory report and/or science journal may be assessed with a rubric. You should also assess the tables for accuracy.