WIZARDS
Teaching Guidelines

Subject: Science

Topics: The Nature of Science and Technology, Physics

Grades: 6 – 12

Concepts:

- Understands the concept "reflectivity"

Knowledge and Skills:

- Can create a chart for the collection of experimental results
- Can present experimental results clearly in written form
- Can design an experiment which compares behavior or characteristics of classes of objects or subjects
- Can measure light intensity

Materials: Source light, stands, clamps, reflective material, light meter

Procedure:

This project should be done in teams of two to four students.

Distribute the handout and discuss it. Talk about and demonstrate some examples of different reflectivities from different types of materials.

Each team of students will need some sort of light intensity measurement device. They will also need a light source and some lab equipment (stands, clamps, etc) to put together a stable testing platform.

Emphasize the importance of developing a procedure that minimizes error. Prior to beginning the activity you may wish to discuss some possible sources of error (for example, non-reflected light entering into the sensing device, variations in the position or angle of the reflecting material, variations in intensity of the incident light).

Emphasize also the importance of a well-written report.

Give students a schedule for working on the project and a due date.

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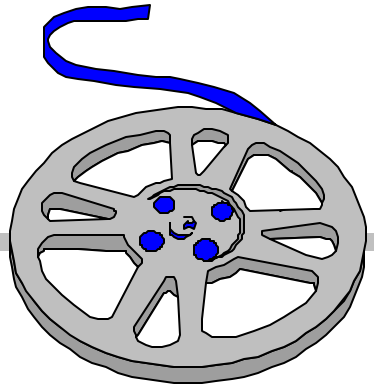

To: Advanced Projects Committee

From: APC Chairman

We have been asked to develop some new types of special effects for a movie that is scheduled to begin shooting next June.

A lot of these effects are going to depend on using materials with an exact degree of reflectivity. In some cases we will want materials that reflect virtually no light, so that they will appear invisible to the camera, and in others we want materials that have a very high degree of reflectivity, so that they appear very bright in the camera and attract the viewer's eye.

We do know that the reflectivity of the material will depend both on its color and the texture of its surface, but we are going to need a lot more information on reflectivity of various materials than we presently have.

The first thing you will need to do is work out a good procedure for measuring reflectivity. I want you to double check to make sure that the procedure you develop gives reliable results.

Then measure the reflectivity of the materials that my executive assistant will provide to you.

Keep good records as you do this, and turn those in along with your final report.

P.S. BE SURE THAT YOUR REPORT IS VERY CLEARLY WRITTEN AND EASY TO READ.