

# Science is voiceless; it is the scientists who talk.

Simone Weil,  
French philosopher



## Interpretations of the Observations

1. In terms of the pitch and loudness of sound reproduction, which film responded better, the flexible film alone or the rigid film alone?
2. Did these films respond better to direct contact (flicking and scratching) or to stresses from a distance (blowing and talking)? Did adding the substrate have more of an effect on the film's response to direct contact or to distant stresses? Explain.

## Reflections

3. Did your observations agree with your predictions? Do the reasons you gave for your predictions explain the actual results? If not, what new explanation do you have to account for your results?
4. Review the way you conducted your tests to identify factors that might have affected the accuracy of your results. How could you refine your testing procedure to make your tests more accurate?

## Putting It All Together

5. Based on your observations, describe the role you think the PVDF film plays in the microphone.
6. How did using the substrate affect the performance of the PVDF microphone?

**D**esign Connection How could you apply what you have learned in this activity to designing a miniature cellular phone or a miniature speaker system?

## I Wonder

Talk with your group to generate some questions about the action of a PVDF film as a microphone element.