• Plan a schedule of soaking the raisins and set up timeline.
• Have the kids help soak the raisins and let it lead into a discussion on reading time on clocks.
• Use science tools to study the raisins like magnifiers, etc. If plastic knives are used, hold off until they have all the raisins or use it as a reward if they have 1-2 descriptions of the raisins in each category. They can always pull the raisins apart with their fingers and some will.
• Be very clear about what you mean by ‘holes’, and give an example about what you would see if there were holes.
  • If a student indicates that their raisin has holes, ask them to show you the hole.
  • One way to illustrate the difference between a hole and a wrinkle is to use the example of clothing.
  • Using the magnifiers can lead to misconceptions (seeing holes) if the students are not clear what they are looking for.
• Some students may be from cultures that do not use raisins. It may be helpful to bring in grapes.
Lesson 3.2 Exploring Membranes

- Explore the materials as much as possible, before the class and with the students. There are a lot of them. Organizing into group portions will speed up passing them out.
- Pre-cut anything needed such as the aluminum foil, cheesecloth, screens, etc. Count out stacks of 10 coffee filters. Emphasize that all 10 filters are used together in testing.
- Compare and contrast the different items making predictions before testing.
- Be clear about how to poke the holes in the foil—they should be small. Demonstrate how to do it and check groups to make sure they are making small holes.
- If using the B (Basic) version of the data sheet, be clear about what ‘fast’ and ‘slow’ mean.
- Test materials together and practice seeing what is 30 seconds. Break up the testing if needed.
- Having the students all test the same material at the same time might be a more efficient way to get all of the testing done in a short period of time.
- After the first couple of tests, ask students to predict what will happen with the next item.
- Make time to review the data as much as possible. This can help with their design.
- Review their conclusions at the end of this lesson and the beginning of the next.