11.3 Probability in Society

Explore Making Decisions Based on Probability

The following notes provide guidelines to help you adapt the Explore Making Decisions Based on Probability section from *MathLinks 9*.

- Show students a weather forecast for their local area. Look for examples of probability, such as probability of precipitation. You may wish to have students track local weather forecasts and compare them with actual weather to get a sense of the role of probability in prediction.

Examples

Working Example 1:

- Use the Warm Up to review how to find probability, mean, median, and mode before introducing the examples.
- Review how to change percents to decimal numbers.

Working Example 2:

- Discuss the meaning of *false prediction*. Use an example of exaggeration to describe a situation. For example, a student might say, "No one uses Facebook anymore," which is not true. Use this example to explain that when collecting data, reality rules over perception.

Working Example 3:

- Review the meaning of *probability* and *favourable outcome*, and the correct notation to show probability calculations, such as *P*(swimming).
- Review the difference between *experimental probability* and *theoretical probability*.

Communicate the Ideas, Practise, and Apply

- For #3 and #5, help students identify assumptions by asking them, "What do you think is true about the situation that affects your prediction?"
- Students may benefit from doing the Apply questions in pairs.
- Provide students who need additional practice with **BLM 11–4 Section 11.3 Extra Practice**.

Math Link

- Suggest students include *population*, *sample*, and *data analysis* as key words to use in their research.
- Students may benefit from being guided through this exercise. Discuss each question and explain what is expected for each answer.
- Focus on how scientists collect data about animals and how they are able to predict future numbers based on those data. For example, although Pacific salmon are frequently studied, scientists still have trouble predicting the number of fish in future salmon runs. For many animals, including salmon, populations must be estimated by sampling.
- Encourage students to look for population data and information about how scientists study animals. Students should record the type of data obtained by each method in as much detail as possible. Students can look for sampling that is done by tagging, collecting information by observation, or collecting information from hunters, fishermen, satellites, air reconnaissance, and so on.

Common Errors

- Some students may struggle to use fractions when calculating probability.

R$_x$ Encourage students to convert fractions to decimal equivalents. For example, change $\frac{1}{100} \times 3$ to 0.01×3.