Predicting The Future

❋ VIDEO OVERVIEW ❋

Predicting the Future examines the use of probability theory in statistics. The program explores how probability is determined, defines relative frequency, and discusses the total possible outcomes of an event. The video also looks at how to use probability to make predictions about the future behavior of people, events, and nature.

A newspaper recycling study conducted by Students for a Better Earth is discussed. In the process students:
- Find the probability of an event
- Use probability concepts and calculations to solve problems

The following key concepts are presented in the video.
- Probability theory is used to make predictions about the future. It is based on statistics and mathematics.
- Relative frequency means how much does something occur.
- Probability is a prediction of relative frequency of a particular event.
- Relative frequency is expressed mathematically as a number or fraction between 0 and 1.
- Probability calculations require that you determine the total number of all possible outcomes of an event.
- Tree diagrams are often used to visually display the total number of possible outcomes.
- Theoretical probability involves using mathematics and diagrams to predict the future of a particular event.
- Two or more events that have related probability are dependent.
- Two or more events that have unrelated probability are independent.

❋ DISCUSSION QUESTIONS ❋

Before viewing the video, set the scene by asking your class the following questions. After soliciting some answers, distribute the answer sheets.

Question 1 - What is the main application for probability theory?

Answer - It is a tool used for making predictions about the future.

Question 2 - What does relative frequency mean?

Answer - How often something happens.

Question 3 - How is the relative frequency of an event expressed mathematically?

Answer - Relative frequency is expressed as a number or fraction between 0 and 1.

Question 4 - What is the difference between dependent and independent events?

Answer - The probability of two dependent events is related. The probability of two independent events is unrelated.

❋ MATH PROBLEMS ❋

Problem 1:
Students for a Better Earth conducted a study of newspaper recycling. They surveyed 100 men and 100 women with a goal of determining which group recycled more. In their survey, they found that 26 men recycled and 34 women.

A. What is the probability that men recycled?
_____

B. What is the probability that women recycled?
_____

C. What is the probability that anyone (male or female) recycled?
_____

Problem 2:
Create a tree diagram for the possible outcomes. Include the following:

* Men who recycle
* Men who don't recycle
* Women who recycle
* Women who don't recycle

Problem 3:.
Create a pie chart to show the percentage of anyone who recycles.

Problem 3.
Create a run chart with the number of total passengers per fifteen-minute period.

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## Answer Key
❋ MATH ACTIVITY ❋

Problem 1:
Students for a Better Earth conducted a study of newspaper recycling. They surveyed 100 men and 100 women with a goal of determining which group recycled more. In their study they found that 26 men and 34 women recycled.

A. What is the probability that men recycled? **26/200**
B. What is the probability that women recycled? **34/200**
C. What is the probability that anyone (male or female) recycled? **30/100**

Problem 1:
Create a tree diagram for the possible outcomes.

Problem 1:
Create a pie chart to show the percentage of anyone who recycles.

Measuring Your World

Predicting The Future

PROBABILITY THEORY IN STATISTICS

TEACHER'S GUIDE

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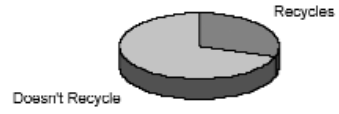
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