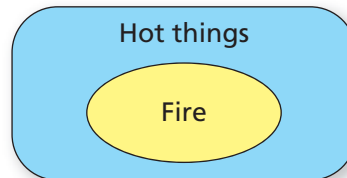


Inductive Reasoning

Inductive reasoning occurs when you form conclusions based on repeated patterns. Although this leaves open the possibility of arriving at false conclusions, it is still the most common type of reasoning. Here is an example.

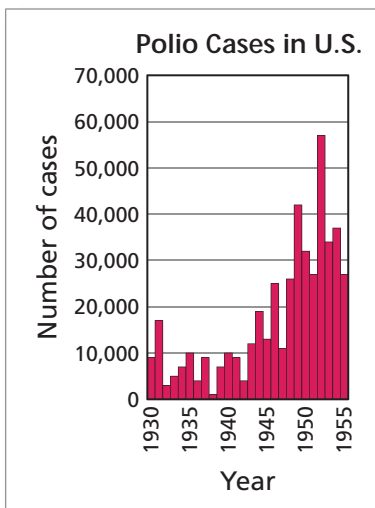
Conclusion Based on Pattern

- All of the fire I have felt is hot.
- Therefore, all fire is hot.



EXAMPLE 5 Using Inductive Reasoning

Explain how the Salk vaccine trials used inductive reasoning.



The Jonas Salk polio vaccine field trials of 1954 were the largest and most publicized clinical trials ever undertaken. Most of the reported polio cases occurred in children under 10 years of age. So, the trial targeted about 1.8 million children in the first 3 grades of elementary school at 211 test sites. In the experiment, about 440,000 children received the vaccine, about 200,000 received a placebo (a solution made to look like the vaccine, but containing no virus), and about 1,190,000 received neither. There were fewer cases of polio in children who received the vaccine than in children who received the placebo or nothing. The results, announced in 1955, were that the Salk vaccine was safe and effective in preventing polio.

SOLUTION

New polio cases dropped to under 6000 in 1957, the first year after the vaccine was widely available. In 1962, an oral vaccine became available. Today there are only a few polio cases in the United States.

<p>Students who received vaccine 440,000</p> <p>Polio cases: 27 per 100,000</p>	<p>Students who received placebo 200,000</p> <p>Polio cases: 71 per 100,000</p>	<p>Students who received nothing 1,190,000</p> <p>Polio cases: 51 per 100,000</p>
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The announcement that the vaccine was both safe and effective was based on inductive reasoning. In other words, it was assumed that the 1.8 million children in the field trial were a good representation of all people.

✓ Checkpoint

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Draw a set diagram that illustrates the inductive reasoning. Is the conclusion correct? Explain your reasoning.

- All the tigers I have seen are orange with black stripes.
- Therefore, all tigers are orange with black stripes.

