Edgenuity

Warm-Up | Tools and Technology

Lesson Question

Lesson Goals

Examine how tools and technology are used in science.

Identify the use of _____ in science.

Describe the relationship between science and technology.

Identify the function, advantages, and limitations of models in science.

Words to Know

Fill in this table as you work through the lesson. You may also use the glossary to help you.

habitable	_____ enough to live on or in
model	a simplified _____ of a real object or system
tangible	easily seen or _____
technology	the application of _____ knowledge to solve problems or create new products

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Science and Society

Science seeks ways to meet the _____ of society.

Scientists gain new _____. → **Scientists improve existing products or processes.** → **Scientists design and create new products or processes.**

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Science and Technology

Technology is the application of _____ knowledge to solve problems or create new _____.

Technology:

- aids in collecting and recording data.
- helps process, store, and communicate data.
- influences the progress of scientific _____.

Observation Tools

Advances in _____ have led to the _____ of telescopes over _____.

Lippershey's _____

Leviathan of Parsonstown

_____ Space Telescope

Gran Telescopio _____

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Measurement and Calculation Tools

Measurement and calculation tools:

- collect large amounts of _____ in a short amount of time with greater precision.
- display data _____ and clearly.
- contain _____ for quick and accurate data analysis.
- store large amounts of data in a very small space.

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Mars Rovers

A Mars rover is a _____ vehicle launched into space to land on and explore the surface of Mars. Its purpose is:

- searching for _____ of ancient life and ancient water.
- investigating whether the planet is _____.

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The Need for Technology

Scientists wanted to make _____ about the weather several days into the future.

- Tracking weather events in a broad area can help scientists make better and more complete _____ predictions.

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The Development of Technology

- Doppler radar can indicate the _____ and _____ of wind and the boundaries between warm fronts and cold fronts.
- Satellites, weather stations, and other devices collect weather data from around the world.
- Supercomputers can use _____ calculations to predict weather.

The Improvement of Technology

Data from _____, weather stations, and other sources are fed to a supercomputer that makes weather predictions. These data:

- account for current weather.
- account for _____-scale factors, such as air pressure, Earth's rotation, and solar radiation.
- allow forecasters to make more accurate _____ about the weather.

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Models in Science

A **model** is a [ ] representation of a [ ] object or system.

Very large Very small Very [ ]

Models in Science

Several different types of [ ] can be used to represent the same thing.

These models may vary in their usefulness, [ ], and complexity.

[ ] or diagram

Science fair model

[ ] model from USGS

Advantages of Models

Models make concepts more [ ] and:

- make it possible to notice [ ].
- are good tools to develop or revise a representation.
- allow scientists to predict or explain events or relationships.

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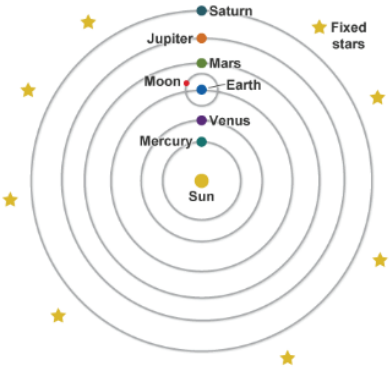
Limitations of Models

- Models may be _____.
- Models cannot represent all aspects of an object or a _____.
- Models are only as accurate as _____ scientific _____.





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Summary | Tools and Technology

Lesson Question

How are tools and technology used in science?

Answer

Slide 2

Review: Key Concepts

- [ ] is the application of scientific knowledge to solve problems or create new products.
- Advances in technology allow for the progression of scientific knowledge.
- Scientific knowledge is used to make advances in technology.

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Review: Key Concepts

A model is a simplified _____ of a real object or system that is very large, very small, or very _____.

Advantages

- Make concepts more _____
- Show patterns
- Allow for development or revision of representations
- _____ or explain events or relationships

Limitations

- May be oversimplified
- Cannot represent all aspects of an object or a system
- Are only as accurate as current scientific knowledge

Use this space to write any questions or thoughts about this lesson.

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