Engineering Remote Sensing Activities 1-9 Collect & Display Poster

Prep & Setup Guide

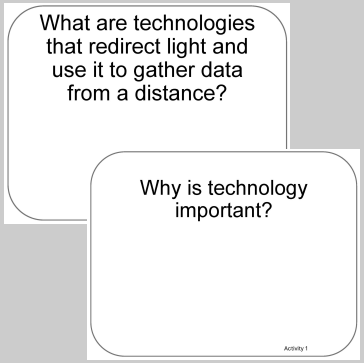
Poster Components

All poster components can be printed on **8.5 x 11” paper**

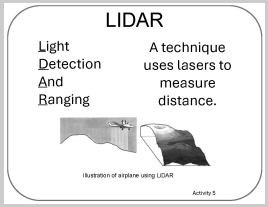
There are PDFs for:

- **Poster Pages** to build the poster (pages numbered in lower right corner with corresponding adventure(s))
- **Poster Pages** with examples are for educator reference only and not intended to print.
- **Blank Pages** for more space or to build your own poster
- **Blank ¼ page cards** for learners to add additional terms, drawings, ideas
- **Term cards**:
  - Icon-only
  - Term + icon

Poster Pages

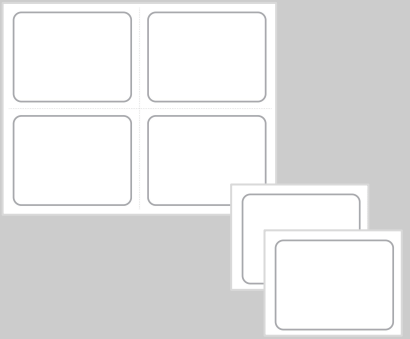


Term Cards



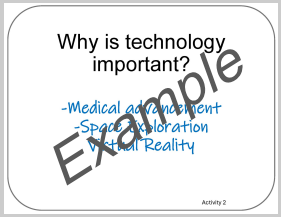
Term + icon

Blank ¼ page cards



Intended for learner responses

Poster Pages With Examples



For reference only, Do not print.

Blank Pages

Setup

To set up the poster space, you will need a wall or whiteboard area of about **80” Length x 60” Height**

Please see the following pages for setup examples. You may choose alternative layouts to fit your learning environment.

Other Materials:

- Scissors
- Masking Tape
- Tape
- Markers

icons: Flaticon.com

Poster Setup (Empty Example)

Our Ideas about Remote Sensing Engineering

Why is technology important?

How can we redirect light to gather data from a distance?

What are technologies that redirect light and use it to gather data from a distance?

System:
A group of parts that work together.

What are places in your daily lives where people use mirrors to redirect light?

How can we gather information about Mars from far away?

How can we use a system to redirect light to gather data from a distance?

Portable:
Easy to move around

How might someone use remote sensing technologies in everyday life?

What questions to you still have?

Remote Sensing:
Collecting information at a distance

How can we learn about the shape of the surface of Mars?

LIDAR

Light Detection And Ranging

A technique that uses lasers to measure distance.

Birds-eye view:
A perspective from above

Topography:
The shape of the land in an area.

Topo: place

Graph: to write or draw

Physical Properties:
The shape & texture of a surface.

When might someone need to know about topography in everyday life?

What questions to you still have?

NASA is interested in finding out what planets are made of because this can tell them about a planet's history

How can we learn what the surface of Mars is made of?

Filter Investigation

Color | Filter Material

Scraper Investigation

Texture | Scraper Material

What questions to you still have?

How can we create remote sensing devices to gather different types of data from a distance?

How can we improve our remote sensing devices?

How can we share information about our remote sensing device design w/others?

Poster Setup (Empty Example)

Our Ideas about Remote Sensing Engineering

Why is technology important?

-Medical advancement
-Space Exploration
-Virtual Reality

How can we redirect light to gather data from a distance?

What are technologies that redirect light and use it to gather data from a distance?

-mirrors
-telescopes
-cameras
-laser levels

System:
A group of parts that work together.

Remote Sensing is made up systems.

What are places in your daily lives where people use mirrors to redirect light?

-Carnival rides
-Small spaces to make them feel bigger
-Construction sites (laser levels)
-Cars (rearview mirrors)

How can we gather information about Mars from far away?

How can we use a system to redirect light to gather data from a distance?

-The system should be portable and remote

Portable:
Easy to move around

Remote Sensing is made up systems are portable.

What questions to you still have?

Remote Sens
Collecting

How might s use remo tec gies in eve y life?

-Aut navigation
-Predic weather
-Servi level rise
-Cl ing ca

How can we learn about the shape of the surface of Mars?

-LIDAR allows a laser on the surface of a planet and measures how long it takes the laser to bounce back. This, then lets us calculate how far away the surface is. By using many laser beasts, we can gather information about the topography.

LIDAR

Light Detection And Ranging

A technique that uses lasers to measure distance.

Birds-eye view:
A perspective from above.

ography:
e shape of nd in an area.

Tone: place
h: to write
ow

Physical Properties:
The shape & texture of a surface.

When might someone need to know about topography in everyday life?

-Finding a place to play soccer
-Planning a hike

What questions to you still have?

NASA

NASA is interested finding out w planets are ma of because thi can tell them about a planet's history

Scraper Investigation

Texture | Scr Material

-polarized sunglasses
-separating soil from rocks
-photography

How can we learn what the surface of Mars is made of?

-We can design technologies like filters that use light to identify minerals

Filter Investigation

Color | Filter Material

What questions to you still have?

How can we create remote sensing devices to gather different types of data from a distance?

-It is necessary to combine technologies to get the data we need.

How can we improve our remote sensing devices?

-Choose different filters or scrapers to use.
-Make a device smaller.
-Adjust the positioning of the light redirection system & LIDAR

How can we share information about our remote sensing device design w/others?

-Talking
-Walking
-Drawing
-Videos

Remote Sensing Engineering Activities 1-9 Our Ideas Poster

Why is technology important?

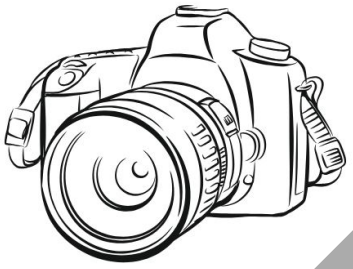
-Medical advancement
-Space Exploration
Virtual Reality

How can we redirect light to gather data from a distance?

How can we gather information about Mars from far away?

-Was there water on Mars?
-How can we figure out to land a rover?
-What technologies can we put on a spacecraft?
-How can we see Mars close up?

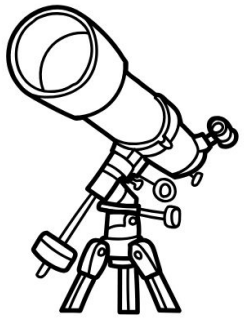
What are technologies that redirect light and use it to gather data from a distance?



la cámara

Spanish language- camera

-mirrors
-telescopes
-cameras
-laser levels



el telescopio

Spanish language- camera

System:

A group of parts that work together

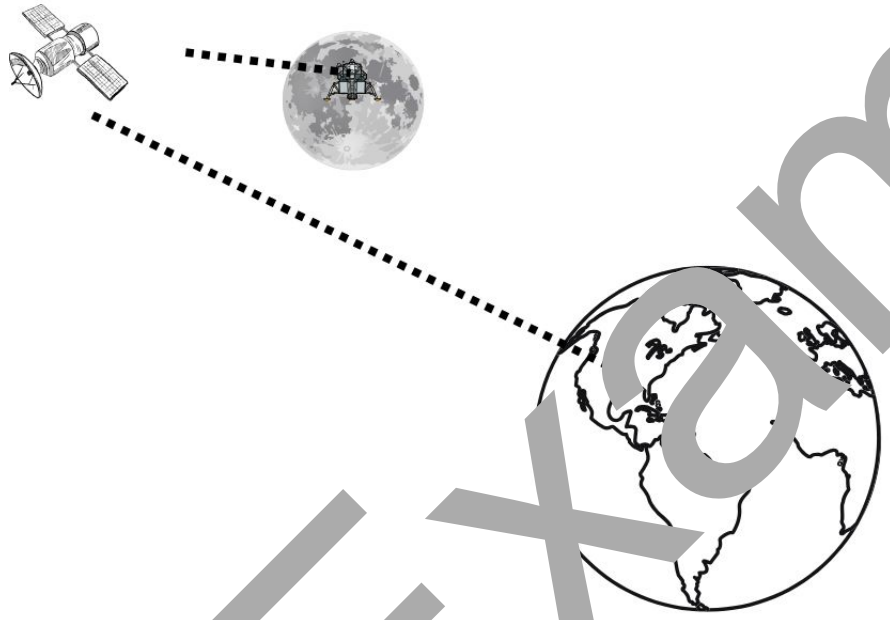


Illustration of a spacecraft on the moon sending signals to a satellite, which then sends to Earth.

Remote Sensing is made up systems.

What are places in your daily lives where people use mirrors to redirect light?

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-Small spaces to make them feel bigger

-Construction sites (laser levels)

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-The system should be portable and remote

Portable:

Easy to move around

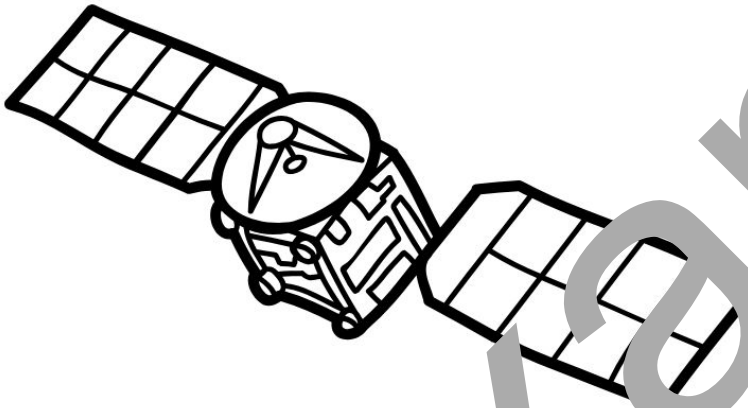


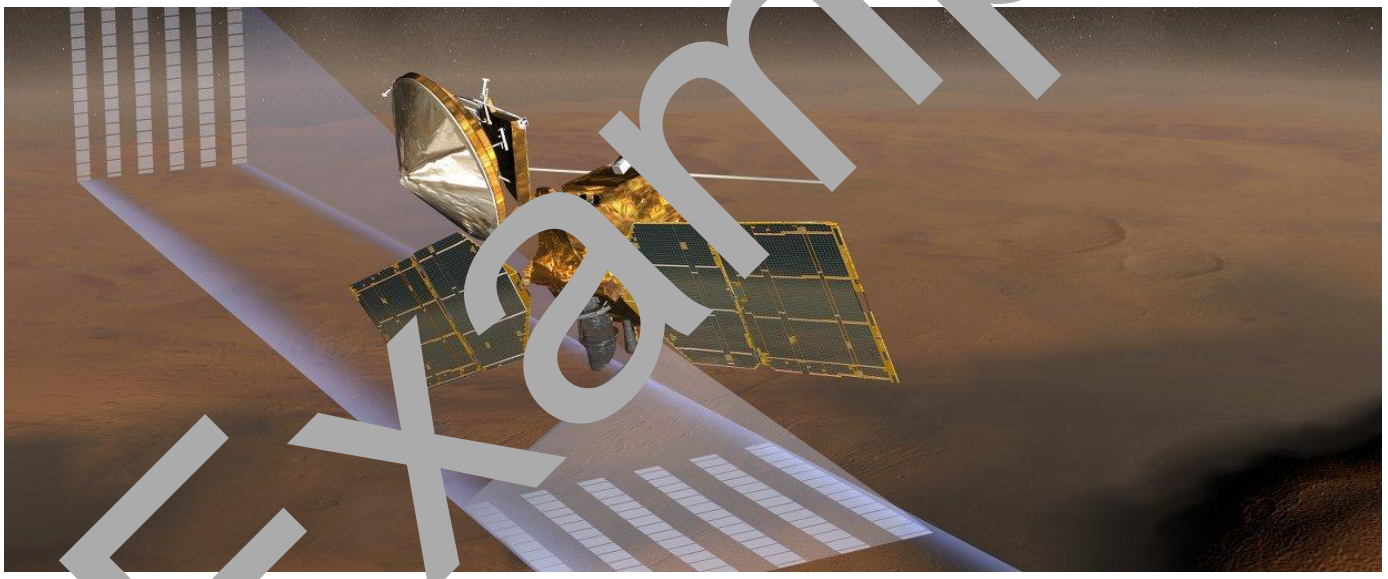
Illustration of a satellite to orbit Earth

Remote Sensing is made up systems are portable.

What questions to you still have?

Remote Sensing:

Collecting information at a distance

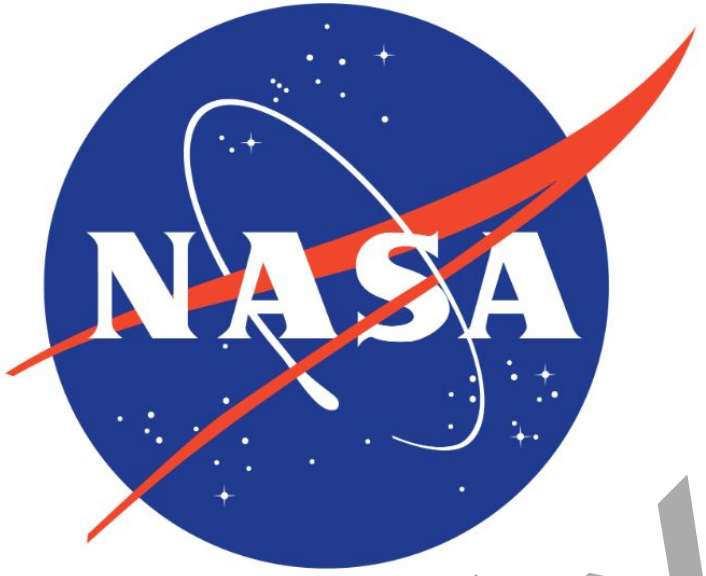


Artist Rendition of Mars Reconnaissance Orbiter (MRO) collecting temperature, pressure, dust and water vapor concentration above Mars (Source: NASA / JPL)

How might someone use remote sensing technologies in everyday life?

-Google maps to see which way is the fastest
-Checking the weather
-Tornado notification

NASA is interested in finding out what planets are made of because this can tell them about a planet's history



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Scraper Investigation

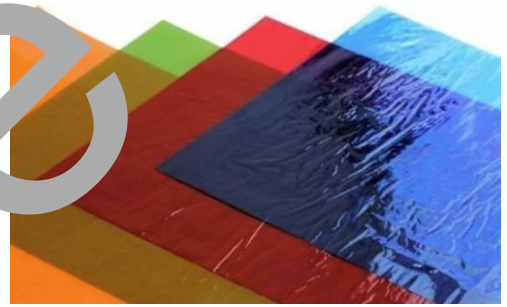
Texture

Scraper Material

Filter Investigation

Color

Filter Material



-polarized sunglasses
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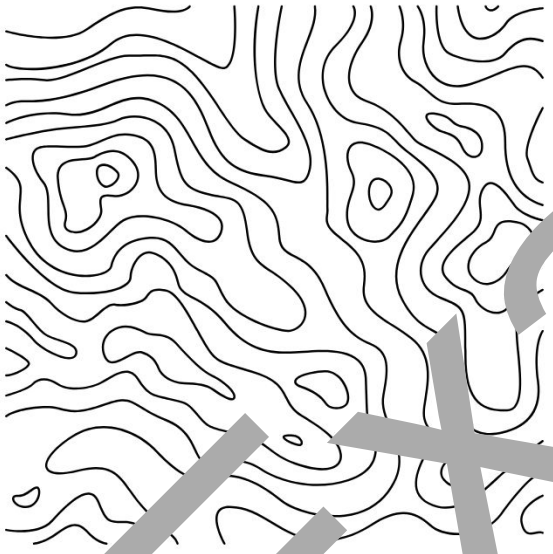


Illustration of a topographic map.

Topo: place

Graph: to write or draw

LIDAR

Light
Detection
And
Ranging

A technique uses lasers to measure distance.

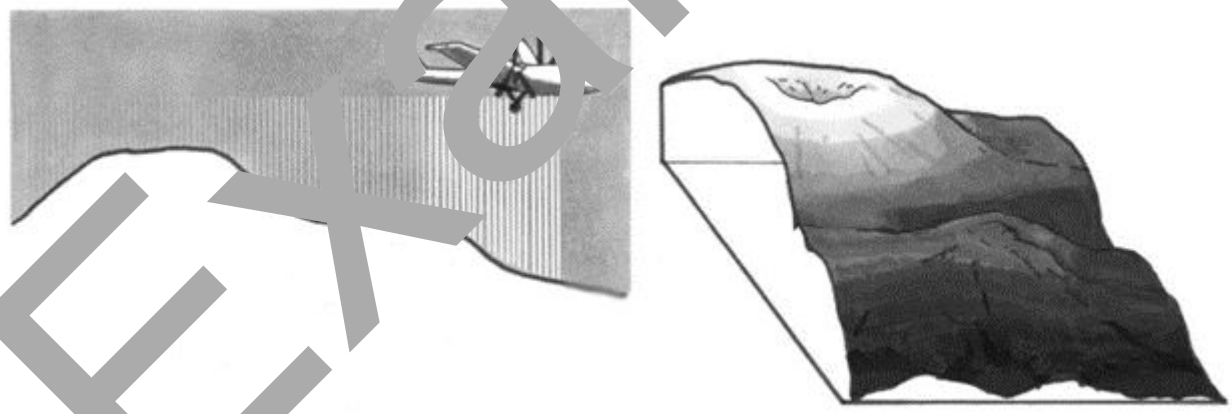
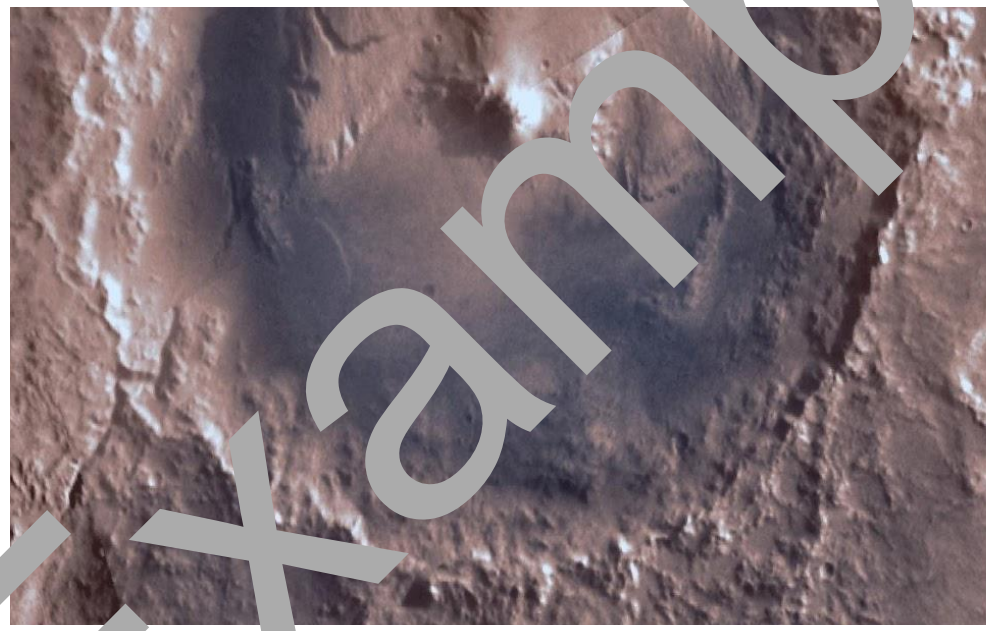


Illustration of airplane using LiDAR

Birds-eye view:

A perspective from above.



Bird's eye view looking down on Gale Crater on Mars.
(Source: NASA Viking Orbiter)

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