

# NASA Education Resources

What else can I use in my classroom?

# Where Do I Start?

The NASA Portal, of course!

Resource materials to print

Press Releases

Scientific research studies

Online interactives for students to explore

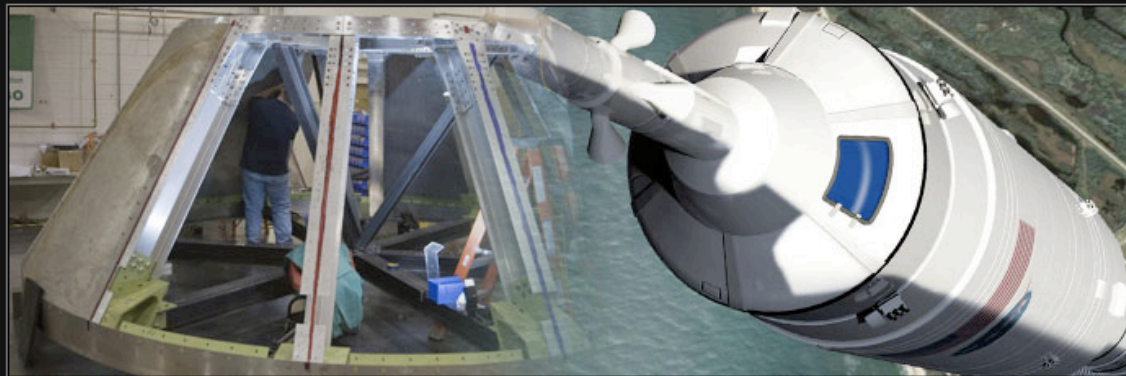
Images, images and more images!

Career profiles

# www.nasa.gov

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## ▾ Pieces Coming Together for First Test Launch of NASA's New Spacecraft



NASA is using powerful computers to design its next generation launch vehicles. But those computers will have their work checked the old-fashioned way with the first of several uncrewed demonstration launches beginning in 2009. [Read More](#)

## ▾ Future Lunar Rover, Astronauts Represent NASA in Inaugural Parade

## ▾ Satellites Confirm Half-Century of West Antarctic Warming

[SHUTTLE & STATION](#)[MOON AND MARS](#)[SOLAR SYSTEM](#)[UNIVERSE](#)[AERONAUTICS](#)[EARTH](#)[TECHNOLOGY](#)[NASA IN YOUR LIFE](#)[NASA PEOPLE](#)[NASA HISTORY](#)

## NASA Images

[Image of the Day](#)[nasaimages.org](#)

## NASA TV & Video

[Video On Demand](#)[NASA TV \(Live\)](#)[Vodcast](#)

### NASA Lunar Electric Rover in the Inaugural Parade

[Play](#)

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<http://www.nasa.gov/audience/foreducators/index.html>

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### For Educators

- ▶ Grades K-4
- ▶ Grades 5-8
- ▶ Grades 9-12
- ▶ Higher Education
- ▶ Informal Education
- Find Teaching Materials
- Education TV Schedule

### Office of Education

Find contact and program information from NASA's Office of Education Web site.

▶ Education

### NASA for Students

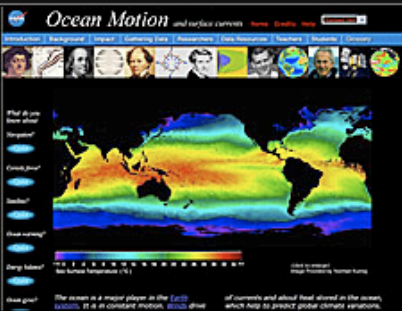
Go to the Students section of [www.nasa.gov](http://www.nasa.gov).

▶ Students

### NASA eClips

### Educator Features and Articles

#### Ocean Motion



A Web site provides an in-depth look at ocean surface currents. The site includes classroom lessons and interactive data visualizers.

▶ Read and Comment

#### S'COOL Kids Still Have Their Heads in the Clouds

#### The Young Scientist Challenge

View Archive

#### Find Teaching Materials

Looking for Classroom Materials?

NASA's Education Materials Finder will help teachers locate resources that can be used in the classroom. Users may search by keywords, grade level, product type and subject. With hundreds of publications and Web sites indexed, the

### Education Calendar

January 2009

				01	02	03
04	05	06	07	08	09	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

### A to Z Index

### Education Programs

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### For Educators

▶ Grades K-4

▶ Grades 5-8

▶ Grades 9-12

▶ Higher Education

▶ Informal Education

[Find Teaching Materials](#)

[Education TV Schedule](#)

### Find Teaching Materials ?

To narrow selections, check all boxes that apply. Click subject titles to expand options. Hit the view button.

Search Term:

- |   |   |   |
|---|---|---|
| <input type="checkbox"/> Grades K-4         | <input type="checkbox"/> Bookmarks            | <input type="checkbox"/> Careers            |
| <input type="checkbox"/> Grades 5-8         | <input type="checkbox"/> Classroom Activities | <input type="checkbox"/> > Earth Science    |
| <input type="checkbox"/> Grades 9-12        | <input type="checkbox"/> Educator Guides      | <input type="checkbox"/> > General Science  |
| <input type="checkbox"/> Higher Education   | <input type="checkbox"/> Lesson Plans         | <input type="checkbox"/> > History          |
| <input type="checkbox"/> Informal Education | <input type="checkbox"/> Lithographs          | <input type="checkbox"/> > Life Science     |
|   | <input type="checkbox"/> Play and Learn       | <input type="checkbox"/> > Mathematics      |
|   | <input type="checkbox"/> Posters              | <input type="checkbox"/> > Physical Science |
|   | <input type="checkbox"/> Program Brochures    | <input type="checkbox"/> > Space Science    |
|   | <input type="checkbox"/> Video Learning Clips | <input type="checkbox"/> Spanish            |
|   | <input type="checkbox"/> Web Sites            | <input type="checkbox"/> > Technology       |

1 5 4 0

Materials Found

[View](#)



- > Budgets, Strategic Plans and Accountability Reports
- > Equal Employment Opportunity Data Posted Pursuant to the No Fear Act
- > Information-Dissemination Policies and Inventories

- > Freedom of Information Act;
- > Privacy Policy & Important Notices
- > Inspector General Hotline
- > Office of the Inspector General

- > Contact NASA
- > Site Map
- > USA.gov
- > ExpectMore.gov
- > Help and Preferences



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### For Educators

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- ▶ Grades 5-8
- ▶ Grades 9-12
- ▶ Higher Education
- ▶ Informal Education
- Find Teaching Materials
- Education TV Schedule

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To narrow selections, check all boxes that apply. Click subject titles to expand options. Hit the view button.

Search Term:

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Grades K-4            | <input type="checkbox"/> Bookmarks                  | <input type="checkbox"/> Careers                    |
| <input checked="" type="checkbox"/> Grades 5-8 | <input type="checkbox"/> Classroom Activities       | <input checked="" type="checkbox"/> > Earth Science |
| <input type="checkbox"/> Grades 9-12           | <input checked="" type="checkbox"/> Educator Guides | <input type="checkbox"/> > General Science          |
| <input type="checkbox"/> Higher Education      | <input type="checkbox"/> Lesson Plans               | <input type="checkbox"/> > History                  |
| <input type="checkbox"/> Informal Education    | <input type="checkbox"/> Lithographs                | <input type="checkbox"/> > Life Science             |
|  | <input type="checkbox"/> Play and Learn             | <input type="checkbox"/> > Mathematics              |
|  | <input type="checkbox"/> Posters                    | <input type="checkbox"/> > Physical Science         |
|  | <input type="checkbox"/> Program Brochures          | <input type="checkbox"/> > Space Science            |
|  | <input type="checkbox"/> Video Learning Clips       | <input type="checkbox"/> Spanish                    |
|  | <input type="checkbox"/> Web Sites                  | <input type="checkbox"/> > Technology               |

0 0 2 8

Materials Found

View

## Find Teaching Materials

Expand



Didn't find what you were looking for? > [Filter Again](#)

### Teaching Materials Results

**Selected Grade(s):** Grades 5-8

**Selected Type(s):** Educator Guides

**Selected Subject(s):** Earth Science

Results 1 - 10 of 28.



1 2 3



#### [NASA - Investigating the Climate System - Clouds](#)

This module was developed as part of the series "Investigating the Climate System." The series includes five modules: Clouds, Energy, Precipitation, Weather, and Winds.

**Resource Type:** Lesson Plan, Educator Guide

**Grade Level:** 5-8

**Subjects Covered:** [Earth Science > Environment](#) | [Earth Science > Geography](#) | [Earth Science > Oceanography](#) | [Earth Science > Meteorology](#) | [Mathematics > Computation and Estimation](#) | [Mathematics > Algebra](#) | [Mathematics > Graphs](#) | [Physical Science > Physics](#) |

#### [NASA - Planetary Geology](#)

Study geologic processes using the activities in this educator guide from NASA.

**Resource Type:** Lesson Plan, Educator Guide, Other

**Grade Level:** 5-8, 9-12, Undergraduate Lower Division (13-14), Undergraduate Upper Division (15-16)

**Subjects Covered:** [Earth Science > Geography](#) | [Earth Science > Geology](#) | [Earth Science > Meteorology](#) | [Mathematics > Computation and Estimation](#) | [Mathematics > Geometry](#) | [Mathematics > Measurement](#) | [Physical Science > Physics](#) | [Space Science > Astrobiology](#) |

#### [NASA - Exploring the Moon Educator Guide](#)

This NASA educator guide has activities for grades 4-12.

# http://neo.sci.gsfc.nasa.gov



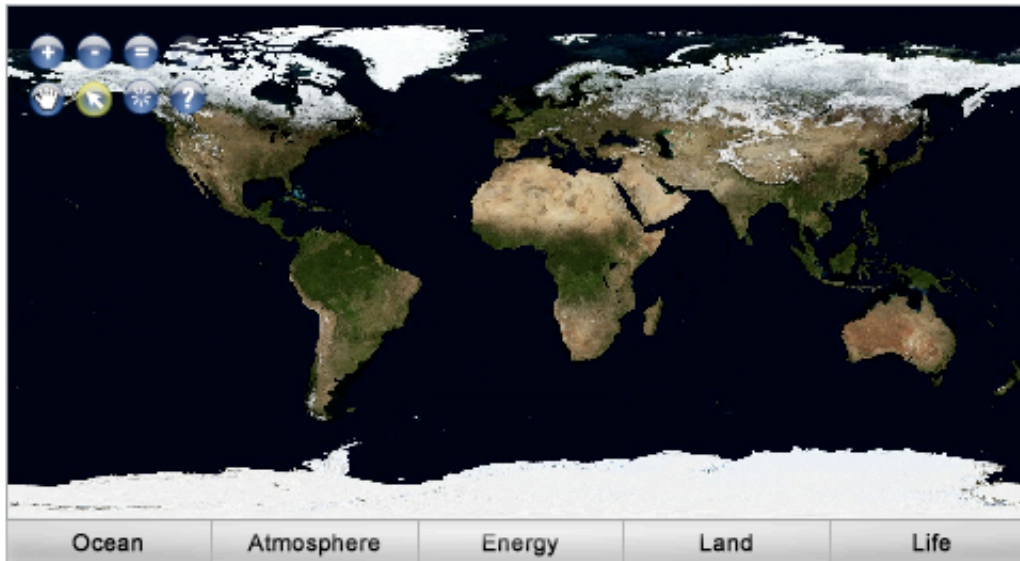
NATIONAL AERONAUTICS  
AND SPACE ADMINISTRATION

# NEO

NASA  
Earth  
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**Tip:** New dataset: Active Fires. See the "Land" tab below.



### Blue Marble: Next Generation (Terra/MODIS)

December 1, 2004 00:00-January 1, 2005 00:00

[About this dataset](#)

#### Search Results

December 1, 2004 00:00 to January 1, 2005 00:00

[View](#)

[Open in Google Earth](#)

#### Search Parameters

##### Coverage

Region

Duration

##### Date Range

Start

End

[Clear Form](#)

[Search NEO](#)

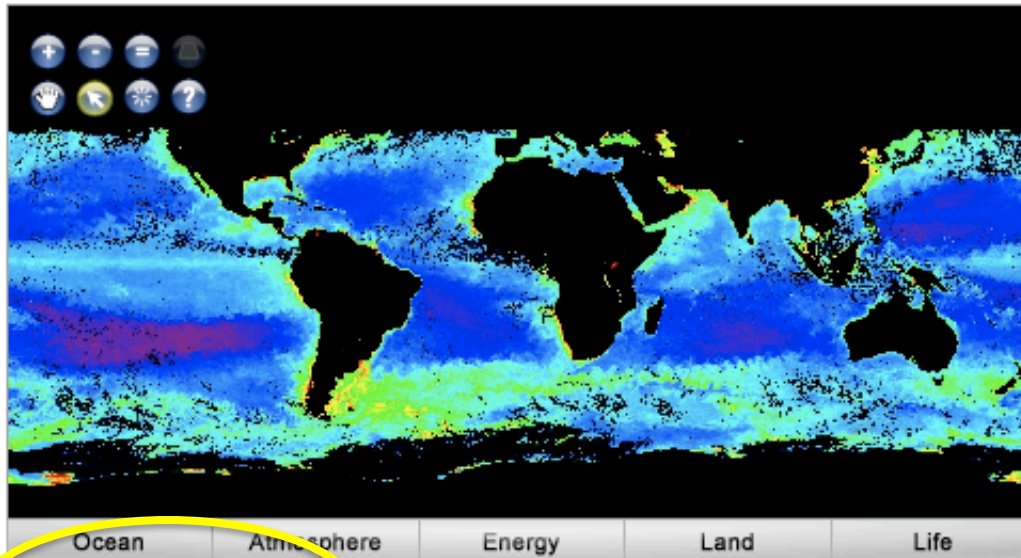
#### Download Options

[Get Image](#)





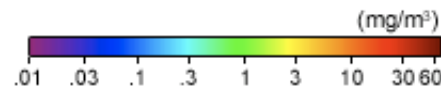
Tip: You can use the granule overlay button (when active) to toggle the display of 5-minute granules that comprise the currently viewed scene.



Chlorophyll Concentration (1 month - Aqua/MODIS)

December 1, 2008 00:00-January 1, 2009 00:00

About this dataset



Search Results

December 1, 2008 00:00 to January 1, 2009 00:00

View

Open in Google Earth

Analyze this image

Download Data (17.8 MB)

November 1, 2008 00:00 to December 1, 2008 00:00

October 1, 2008 00:00 to November 1, 2008 00:00

September 1, 2008 00:00 to October 1, 2008 00:00

Search Parameters

Coverage

Region Global

Duration day

Date Range

Start

End

Clear Form

Search NEO

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Full

Color

JPEG

Get Image

Analysis

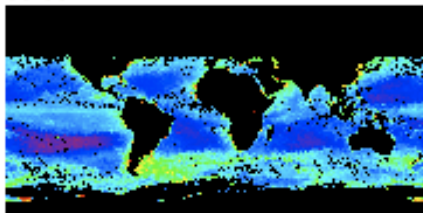
Matching Datasets

Chlorophyll Concentration (8 day - Aqua/MODIS)

Chlorophyll Concentration (1 day - Aqua/MODIS)



Chlorophyll Concentration (1 month -  
Aqua/MODIS) Dec. 1 2008 00:00-Jan. 1 2009  
00:00



[remove](#)

[Remove all images](#)

**Configure Analysis**

Select Area

Mode

File Sizes

Download

### Configure analysis

You may configure the analysis further by selecting a specific area to analyze, selecting different modes under which the analysis will run, or adjust the size of the files (resolution) that will be used in the analysis. For more information on each of these options, click on the appropriate tab. If you would like to accept the defaults and run the analysis, click on the 'Launch analysis' link below.

[Launch analysis](#)

Webmaster: *Kevin Ward*

NASA Official: Vincent Salomonson

Last Updated: Sep 03, 2008 05:24:44 PM EDT

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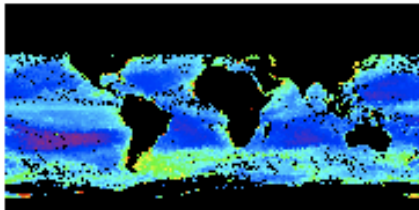
[NASA Privacy Policy and Important Notices](#)

Our partners





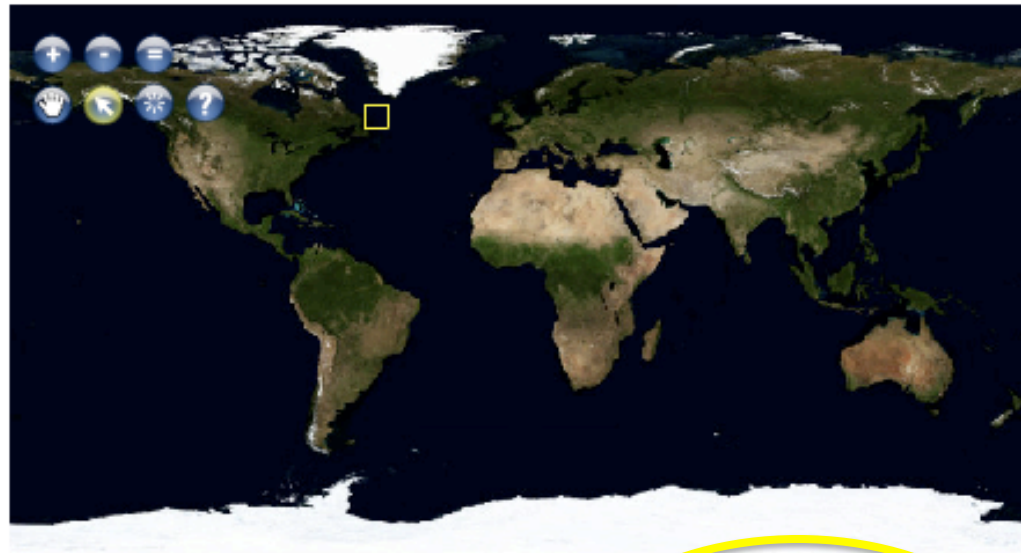
Chlorophyll Concentration (1 month -  
Aqua/MODIS) Dec. 1 2008 00:00-Jan. 1 2009  
00:00



[remove](#)

[Remove all images](#)

[Configure Analysis](#) **[Select Area](#)** [Mode](#) [File Sizes](#) [Download](#)



### Select Area

When comparing images in the analysis tool, it may be desirable to select a specific region or area. To do so, please select an area using the map above and then click 'Select.' This area will be used when you analyze your selections. You can also return to this page and refine your area at a later time.

	North	
	<input type="text" value="57.74"/>	
West		East
<input type="text" value="-54.82"/>		<input type="text" value="-46.64"/>
	South	
	<input type="text" value="50.24"/>	
<input type="button" value="Select"/>		

[Launch analysis](#)



[Return to analysis configuration](#) [Download to Desktop](#)

For more instructions on using the ICE Tool, please see the [ICE User's Guide](#).

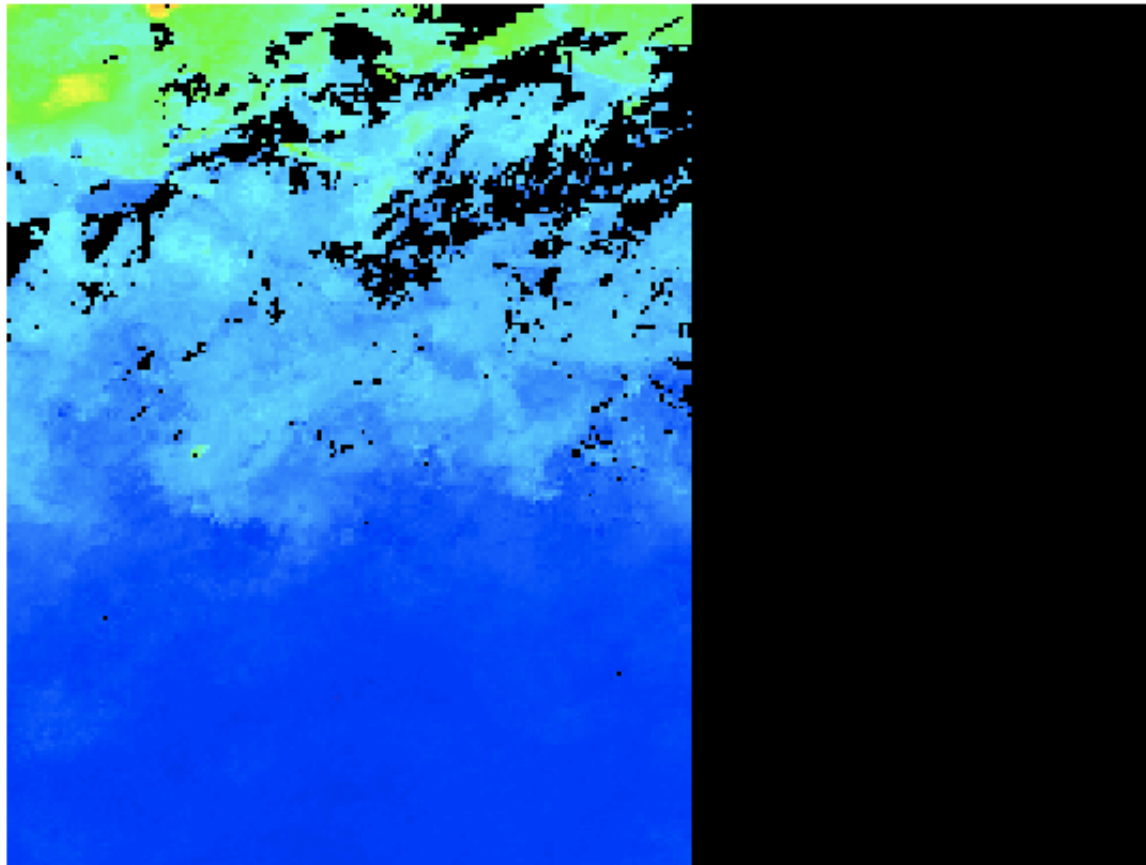
### Key to scenes:

1. Chlorophyll Concentration (1 month - Aqua/MODIS) Dec. 1 2008 00:00-Jan. 1 2009 00:00

74.30000

0.94462

0.01000



Zoom & Roam

Restore

Probe

Plot transect

Distance

Select region

Outline region

Histogram

Print Image

Chlorophyll Concentration (1 month -

# <http://smarts skies.nasa.gov>



Ames Research Center

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## SMART SKIES™

WHAT'S ON **YOUR** RADAR SCREEN?



[FlyBy Math](#)

[LineUp With Math](#)

[Educator Resources](#)

[Give A Workshop](#)

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### Distance-Rate-Time Investigations in Air Traffic Control (ATC)

Math for Grades 5-9

**New!** Activities for museums, fly-ins, & career days!

#### Interactive and Hands-on



#### TWO MATH PRODUCTS

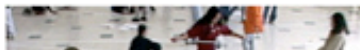
### FlyBy Math™

- A fresh look at traditional distance-rate-time problems
- Featured in NCTM's middle school journal, August '06

### LineUp With Math™

Decision-making in air traffic control using

- proportional reasoning
- distance-rate-time relationships



24 25 26



# LineUp With Math™



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[Student Mat'ls](#)

[Standards](#)

[Give a Workshop](#)

[Simulator](#)

[Videos](#)

[ATC](#)

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## Math-Based Decisions in Air Traffic Control (ATC) Grades 5 - 9

$$D = R \cdot T$$

**New!** Activities for museums, fly-ins, & career days!



### LEARN ABOUT LINEUP WITH MATH™

First time?  
Start here!



What's *LineUp With Math™*?

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Can you line  
up the planes?



An interactive  
Air Traffic  
Simulator...

[Read About the Simulator](#)

Can you do  
the math?



... and 6 problem  
sets.

[Explore the Problem Sets](#)

<http://education.jsc.nasa.gov/explorers>



NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

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NASA's vision for Space Exploration depends on our students, the next generation of space explorers.

What is the 21st Century Explorer? NASA's 21st Century Explorer is a 3rd-5th grade standards-based program that uses the Web, animation, and video to introduce science, technology, engineering, mathematics, and NASA space exploration concepts.

Click on a question below to investigate:



[Are we there yet?](#)



[Why return to the moon before going to Mars?](#)



[Why do astronauts eat tortillas instead of bread?](#)



[Why do we want to study and travel to Mars?](#)



[How would your body change in space?](#)



[Where would a space explorer find water and oxygen?](#)



[How can we travel faster in space?](#)



[What would you find on the moon's surface?](#)



[What will replace the space shuttle?](#)



[What would you hear in a weather report from Mars?](#)



## GET A LEG UP

Activity topic selected from NASA's 21<sup>st</sup> Century Explorer newsbreak "How would your body change in space?"

### Educator Section

#### Introduction

Trading Earth's environment for the environment of space is exciting. As the environment changes, so will an astronaut's body change. Less gravity is one of the major changes of living in space. Traveling to Mars and, perhaps into deep space, will involve living in space for months or years. How will an astronaut's body change and adapt as a result of living in a reduced gravity environment for that long?

#### Lesson Objective

This lesson simulates the fluid shift felt by astronauts upon entering space.

#### Problem

On Earth, can I determine if I have simulated the fluid shift felt by astronauts when they enter space?

#### Learning Objectives

The students will

- collect data by measuring the circumference of the leg before and during the simulation.

**Grade Level:** 3-5

**Connections to Curriculum:** Science and Health

**Basic Science Process Skills:** observing, predicting, measuring, comparing, communicating, inferring, number relationships  
(Association for the Advancement of Science)

**Teacher Preparation Time:** 20 minutes

**Lesson Duration:** 90 minutes

**Prerequisite:** none

**National Education Standards** addressed in this activity include Science (NSTA/NRC), Mathematics (NCTM), and Health (AAHPERD). For an alignment to standards in this activity, see page 5.

#### Materials Required

metric measuring tapes or string and metric rulers



<http://www.nasa.gov/audience/foreducators/nasaeklips/index.html>

The screenshot shows the NASA eClips website. At the top is the NASA logo and a navigation menu with links for HOME, NEWS, MISSIONS, MULTIMEDIA, ABOUT NASA, and COLLABORATE. Below the menu are links for 'Log In To MyNASA' and 'Sign Up', and a search bar. A secondary navigation bar includes 'NASA Home', 'For Educators', and 'NASA eClips', along with 'Send' and 'Bookmark' icons. The main content area features a large banner for 'NASA eClips Innovative Real World Learning' with a background of mathematical equations. Below the banner is a section titled 'NASA eClips Programs' which contains four columns: 'Grade K-5' (Our World), 'Grade 6-8' (Real World Mathematics), 'Grade 9-12' (NASA Launchpad), and 'General public' (NASA 360). On the left side, there are two vertical panels: 'NASA for Educators' with a link to the Educator's section, and 'NASA for Students' with a link to the Students section. A sidebar on the left lists various resources like 'Our World Grades K-5', 'Real World Grades 6-8', 'Launchpad Grades 9-12', 'NASA 360 For Public', '5E Teaching Model', and 'NASA eClips FAQ'.

**NASA**

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### NASA eClips

Innovative Real World Learning

**NASA eClips**

#### NASA eClips Programs

Grade K-5	Grade 6-8	Grade 9-12	General public
			
Elementary students learn more about <b>Our World</b> through the power of video segments.	Middle school students explore mathematics in action through <b>Real World: Mathematics</b> .	High school students ignite their interest in science and engineering through NASA innovations in <b>Launchpad</b> .	The public gets an inside look at NASA's current research and projects through this magazine-style program.

#### NASA for Educators

Go to the Educator's section of [www.nasa.gov](http://www.nasa.gov).

› Educators

#### NASA for Students

Go to the Students section of [www.nasa.gov](http://www.nasa.gov).

› Students

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- ▶ Real World Grades 6-8
- ▶ Launchpad Grades 9-12
- NASA 360 For Public
- 5E Teaching Model
- NASA eClips FAQ

## Our World Overview

### Our World

Elementary students (grades K-5) learn more about **Our World** through the power of video segments. Through NASA's lens, the **Our World** segments compare the natural world with the designed world, illustrating ways to make the most of this world while propelling us into new worlds. This program supplements existing elementary learning objectives not only in science, technology, engineering and mathematics, but also in reading, writing, and visual and performing arts.

Click on the images below to access video content and teacher guides.


 <b>AERONAUTICS</b>	 <b>COMMUNICATIONS &amp; LAUNCH</b>	 <b>EARTH</b>	 <b>EXPLORATION</b>
 <b>LIVING IN SPACE</b>	 <b>STEM Basic</b>	 <b>SUN</b>	 <b>UNIVERSE</b>
 <b>PLAYLIST</b> (35+ videos)			

**Click on Playlist button above for additional videos.**

Subscribe to the **Our World** Podcast [XML](#)

› [Check out more NASA Podcasts](#)

<http://dln.nasa.gov>



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# NASA Digital Learning Network™

*Virtually There*

*NASA Centers: Ames, Dryden, Goddard, Glenn, JPL, Johnson, Kennedy, Langley, Marshall, Stennis*

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+ NASA Education Home

## DIGITAL LEARNING NETWORK™ (DLN)

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+ ABOUT THE DLN  
+ EVENT CATALOG  
+ EVENT GUIDELINES  
+ DLInfo CHANNEL  
+ TECHNICAL FAQ  
+ PODCASTS

---

### Digital Learning Network™ Catalog of Events

List All Catalog Events 01/26/2009

Catalog List: Alphabetical Order

A View from the Top: Looking at Earth from Space + GO

---

Search for Event in Catalog

Grade Level: --Any Grade Level--

Subject Matter: --Any Subject Matter--

Subject Category: --Any Subject Category--

Unit Correlation: --Any Unit Correlation--

Search By Standards:

Keyword:

+ GO

---

Catalog of Events List List All Catalog Events

# NASA Digital Learning Network™

*Virtually There*

**DLN**

NASA Centers: Ames, Dryden, Goddard, Glenn, JPL, Johnson, Kennedy, Langley, Marshall, Stennis

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- [+ NASA Education Home](#)

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NETWORK™ (DLN)


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## Event Details

12/07/2006

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### Astronomy: Bringing the Past to Light

 [Email to Friend](#)



**Target Audience:** Students  
Educators: K-12

**Grade Level:** 5-8

**Event Focus :** How has the invention and improvement of telescopes changed the world of astronomy throughout history?

#### Description:

Join us as we explore the history of telescopes from the early Galilean refractor to the future generation of NASA's space-based telescopes, with a special focus on the Hubble Space Telescope. Students will be guided along a timeline of astronomical history to understand how improvements to the basic telescope design allowed for greater and more distant exploration opportunities. Included in this event is an investigation activity about the Hubble Space Telescope in which students will apply math concepts such as estimation and multiplication. The event concludes with an exciting look at the future of NASA's space-based telescope missions.

**Note:** This event can be made into a one hour professional development for educators upon request!

#### Instructional Objectives:

- Students will be able to compare and contrast different telescope designs (reflecting,

For additional resources, contact your  
state's NASA Education Specialist

Maryland – Trena Ferrell  
Trena.M.Ferrell@nasa.gov

New Jersey – Tom Estill  
Thomas.J.Estill@nasa.gov

Or try your state's NASA Educator  
Resource Center