

Phase One : Preparation
Lessons 1—10

Activities 1

Write down something you know about the solar system or galaxy, use research to find out whether or not it is true

Draw and color a map of our solar system accurately

Web Resources for this Topic:

Solar System Reference

<http://www.physlink.com/Reference/AstroPhysical.cfm>

Interactive Solar System

<http://liftoff.msfc.nasa.gov/academy/space/solarsystem/solarsystemjava.html>

Science and Astronomy Reference Desk

<http://www.refdesk.com/space.html>

The Solar System

<http://www.the-solar-system.net/>

Activities 2

Alpha Centauri is about four light years away, how fast would you have to travel to get there within fifteen years?

Find information about Alpha Centauri

Web Resources for this Topic

The Speed of Light

<http://www.what-is-the-speed-of-light.com/light-year.html>

Alpha Centauri

http://www.eso.org/outreach/eduoff/catchstar/cas-projects/nether_alphacen_1/home.html

Constellations and Their Stars

<http://www.astro.wisc.edu/~dolan/constellations/>

(Hint: Look under the constellation Centaurus, or Rigil Kentaurus)

Activities 3

NASA has several advanced propulsion laboratories, try to find their websites and find some interesting information to share

There is one other form of propulsion not mentioned in this exercise, try to find out what that is by looking at the websites below. (Hint: Look for Deep Space One)

Draw a spaceship to take to Alpha Centauri, save this picture for use later

Web Resources for this Topic:

Warp Drive, When? At NASA's Glenn Research Center
<http://www.grc.nasa.gov/WWW/PAO/warp.htm>

NASA's Breakthrough Propulsion Physics Project
<http://www.grc.nasa.gov/WWW/bpp/>

Marshall Space Flight Center
<http://std.msfc.nasa.gov/> or <http://www.spacetransportation.com/>

Activities 4

Draw the *Alpha Explorer*. Where is the engine? Where are the sensors? How will the information get back to Earth?

Find information on some of our past unmanned probes

What do you think Alpha Explorer will see? Draw or write.

Web Resources for This Topic:

NASA Planetary Probe History
<http://www.hq.nasa.gov/office/pao/History/planets.html>

NASA Jet Propulsion Laboratory Mars Website
<http://mars.jpl.nasa.gov/>

Activities 5

Based on what you just learned, draw a map of the Alpha Centauri system just like your map of our solar system. Don't forget that there are three stars! Where are they in relation to each other? Check the primer if you don't know!

Web Resources for This Topic:

Alpha Centauri

http://www.eso.org/outreach/eduoff/catchstar/cas-projects/nether_alphacen_1/home.html

Activities 5 (continued)

Constellations and Their Stars

<http://www.astro.wisc.edu/~dolan/constellations/>

(Hint: Look under the constellation Centaurus, or Rigil Kentaurus)

Alpha Centauri

<http://homepage.sunrise.ch/homepage/schatzer/Alpha-Centauri.html>

Activities 6

What other reasons can you think of to go to Alpha Prime? Explain.

Web Resources for this Topic:

An Article On the Necessity of Humans in Space Operations

<http://www.futureshuttle.com/whygo.html>

Activities 7

How many people would you take along

Draw a picture of the crew of Alpha One. Name them.

Make a command chart. Who is in charge, what do they do, etc...

Revise your picture of Alpha One to take into account how many people are going.

Activities 7 (continued)

Web Resources for this Topic:

Biographies of NASA Astronauts:

<http://www.hq.nasa.gov/office/pao/History/nauts.html>

Activities 8

Make a list of what would you bring for entertainment, clothing, food, to explore?

Web Resources for this Topic:

NASA Jet Propulsion Laboratory Mars Website

<http://mars.jpl.nasa.gov/>

Activities 9

Now that you've learned a little more about designing a spaceship, revise your earlier picture to include human necessities.

Draw up a floor plan for your Alpha One. Include as much detail as you want, but be sure that everything they will need is there. Don't forget bedrooms, bathrooms, a command center, cargo holds, maintenance areas, entertainment areas, places to grow food, places to eat, etc...

Web Resources for this Topic:

NASA Drawings and Technical Specifications for Past Spacecraft

<http://www.hq.nasa.gov/office/pao/History/diagrams/diagrams.htm>

Activities 10

Imagine a robot drone that would assist in fixing a ship. Draw a picture, and make sure it has all the tools necessary to do its job. Don't forget that it will have to fly around in space. If you think there will be more than one kind, draw as many as you can think of.

Activities 10 (continued)

Web Resources for this Topic:

NASA Jet Propulsion Laboratory Mars Website
<http://mars.jpl.nasa.gov/>

Space Robots
<http://www.mos.org/cst/article/900/>

Free-flying Space Robots
http://arl.stanford.edu/projects/free-flying_space_robots/free-flying_space_robots.html