



Looking To The Future

Elementary grades

Lesson Summary

Students make personal time capsules, to be opened when New Horizons reaches Pluto, containing descriptions of their present lives and predictions for the future.

Prior Knowledge & Skills

- Communication through writing

NSES Science Standards

- **Science and technology:** Abilities of technological design

Science context

To get to Pluto in 9 1/2 years, New Horizons has a few tricks up its sleeve. First, the distance between Earth and Pluto is changing all the time as the two planets move about the sun. Pluto's highly elongated orbit makes this effect even more dramatic: Pluto's most distant travels take it nearly twice as far from the sun as it goes during the tightest part of its orbit. So, the New Horizons team has chosen a favorable departure date. But New Horizons will not go straight to Pluto: it will swing around Jupiter, where Jupiter's planet will give the spacecraft extra speed. If New Horizons can't launch during its first launch window, its journey could take up to 15 years.

Teaching Time: One 45-minute period

Materials

Each student needs:

- Pencil and markers
- Student activity sheets
- Scissors
- Empty paper towel roll
- Wrapping paper
- String or ribbon

To share with the entire class:

- Several newspapers
- Access to computer with internet connection or information from internet gathered by teacher or student beforehand

Advanced Planning

Preparation Time: 20 minutes

1. Gather materials
2. Review lesson plan

Suggested background reading

New Horizons Mission Design

A Quick Gravity Assist Primer

*Source: NASA's New Horizons Program
Education and Public Outreach*



NEW HORIZONS



TO PLUTO AND BEYOND

<http://pluto.jhuapl.edu>



LOOKING TO THE FUTURE

Level

Grades 2 - 5

Learning Goals

Examining life now and predicting what it will be like in the future.
Understanding the long timescales involved in space travel.

National Science Education Standards

Standard E: Abilities of Technological Design

National Council of Teachers of English Standards

Standard 5: Use the writing process to communicate with an audience
Standard 8: Use a variety of technological and information resources to gather and synthesize information and to create and communicate knowledge

Materials per class:

Several newspapers

Access to computer with internet connection or information from internet gathered by teacher or student beforehand

Materials per student:

Pencil and Markers

Student Activity Sheets

Scissors

Empty paper towel roll

Wrapping paper

String or ribbon

Teacher Overview

1. Students will be completing information about them currently and then writing a paragraph about themselves and a technological invention they envision in the future.
2. For the information in the present, students are asked to write down personal information and refer to a newspaper to find a headline from today.

3. For the information in the future, students will need to know the year in which New Horizons will fly past Pluto. This will be the future date they will be writing about. To determine when this date will be, refer to the New Horizons website at <http://pluto.jhuapl.edu>. You may want to do this in advance or together as a class.
4. Use this as an opportunity to talk about how distant Pluto is by realizing how long it takes to get there. You may also want to brainstorm with the class about technological items that they might envision.



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STUDENT ACTIVITY SHEET

A lot can change in the time it takes a spacecraft to reach its destination. Depending on its exact route and launch date, New Horizons will take 9 - 15 years to travel the almost 6 billion kilometers from Earth to Pluto. If New Horizons has launched, you can find the date it will fly by Pluto on the New Horizons website, <http://pluto.jhuapl.edu>. (If the spacecraft has not yet launched, pretend today is the launch date and assume it will take 10 years to reach Pluto.) Have you ever thought about where you will be when New Horizons reaches Pluto? What will you have done and learned? Here you'll make some predictions and put them in a time capsule to open when New Horizons reaches its destination!

Directions:

1. On the "PRESENT" page, fill in the blanks and draw a self portrait.
2. On the "FUTURE" page, use your imagination to write a paragraph containing 1-2 sentences about each of the following topics.
 - a. Your grade, if you've graduated from high school or college, what kind of job you have
 - b. Your accomplishments related to school, sports, arts, and your community
 - c. A detailed description of your favorite new technological gadget or invention that you just can't live without
3. Cut out the "PRESENT" and "FUTURE" scrolls along the lines.
4. Roll up the "PRESENT" and "FUTURE" papers and insert them into an empty paper towel tube.
5. Wrap the tube and tie the paper on each end with a piece of string or ribbon. Write "Open When New Horizons Flies Past Pluto" on it.



PRESENT

Date _____
Name _____
Age _____
Grade _____
Names & Ages of Brothers/Sisters

Favorite Activity _____
Favorite Color _____
Favorite Food _____
News Headline _____
President of the US _____

Self Portrait
Draw yourself with the exact outfit you have on today.



