

SNC1D1

**Assignment 1.1: Found: A World that's -200C**

Read the following questions, then answer them using the newspaper article on the other side. Some questions will require additional research or note from class. Answer all questions on another sheet of paper. To obtain full marks, you must show your thinking. Make sure to write your name (first and last) in the top right corner. You must answer these questions in sentence form.

1. What new planetoid was discovered in 2004? What was it named after, and why? /2
2. What does the planetoid look like? (2 things) /2
3. How far away from the sun is the planetoid? /1
4. How did they discover the planetoid? /2
5. What are its periods of rotation and revolution? /2
6. Why do the scientists think it takes so long to rotate? /1
7. Why isn't it reasonable to consider it a planet? (2 things) /2
8. This article was written in 2004, when Pluto was still a planet. Why did Marsden and Brown feel that Pluto should not be considered as a planet? /2
9. What did the International Astronomical Union (IAU) decide two years after this discovery and why? /2

When answering questions, paraphrase the question in your answer. Do NOT begin answer with "It is..."

# Found: A world that's - 200C

'Planetoid' twirls  
around sun slowly  
Tinier than Pluto,  
nearly red as Mars

DEBORAH ZABARENKO  
REUTERS NEWS AGENCY

WASHINGTON—Astronomers have discovered the coldest, most distant object yet found in the solar system, a dark and frigid world a bit smaller than Pluto and more than twice as far away.

The new "planetoid" — named Sedna for an Inuit goddess that created Arctic sea creatures — is at its closest point more than 12.8 billion kilometres from the sun and never gets warmer than about minus-200 C, astronomers said yesterday.

"The sun appears so small from that distance that you could completely block it out with the head of a pin," said Mike Brown, an astronomer at California Institute of Technology, who led the research team.

Sedna is one of the reddest objects in the solar system, after Mars, and takes 10,500 years to travel its highly elliptical path around the sun.

"We think it's not reasonable to call Sedna a planet," added Brown, who noted that astronomers do not have an official definition of what constitutes a planet. Formally, the designation for Sedna is 2003VB12.

Brown and the other astronomers detected Sedna on Nov. 14 during a survey of the outer solar system. As they peered into space, they saw stationary stars and other cosmic bodies, and a very slowly moving object that turned out to be Sedna.

"Anything that moves very slowly across the sky, we know it's something in the solar system: a satellite, a planet, an asteroid," Brown said at a telephone news conference.

"But this is the most slowly moving object we've ever seen moving across the sky, and we knew it must be something very far away."

As distant and cold as Sedna is now, its orbit around the sun takes it more than 10 times farther, to a distance of 135 billion kilometres out.

Sedna rotates once every 40 days, a slow rotation that suggests it might have a moon slowly twisting its twirl, Brown said.

To check this, he and his team plan to use the Hubble Space Telescope to determine whether they are separate.

Sedna is part of the solar system but Brian Marsden, director of the minor planet centre of the International Astronomical Union, said, "It would be misleading to call it the 10th planet. Just as I think it's misleading to call Pluto the ninth planet."

Marsden said astronomical objects must be a certain size to be considered planets, and Pluto is at the lower limit of planetary dimensions.

They also must "participate" in the solar system. There again, he feels Pluto does not qualify — its orbit is neither circular nor in the same plane as the other planets.

Because Sedna is smaller and far more eccentric in its path than Pluto, Marsden questioned its potential planetary status. Brown echoed this assessment and agreed Pluto is no planet.

First detected with the Samuel Oschin Telescope near San Diego, Sedna was observed within days on telescopes from Chile to Spain, Arizona and Hawaii.

NASA's orbiting Spitzer Space Telescope indicates Sedna has about three-fourths the diameter of Pluto, making it the biggest solar system discovery since Pluto in 1930.

WITH FILES FROM ASSOCIATED PRESS

## Our new neighbour

A 'planetoid' discovered by California astronomers is the coldest and most distant object ever found in the solar system. Sedna — formally known as 2003VB12 — is a red, shiny object of rock and ice that astronomers say is too small to be considered a planet. It was named after the Inuit sea goddess Sedna.

**STORY A20**

**How big:**  
Smaller than Pluto and half the size of Earth's moon

**How far from sun:**  
At its closest, more than twice as distant as Pluto

**Diameter:** 2,000 km

**Earth: 150 million km**  
Mars  
Jupiter  
Saturn  
Neptune  
Pluto: 5.9 billion km  
Sedna: More than 12.8 billion km

**SEDNA THE INUIT SEA GODDESS**  
According to the Inuit legend, the sea goddess Sedna has the torso of a woman and the tail of a fish. She created the sea creatures of the arctic, including seals, walrus and whales, and controls their availability to Inuit hunters. The Inuit — who rely on these animals — seek to please her by giving fresh water to seals that have been captured. The discoverers of the new planetoid named it Sedna because she is said to live in an icy cave at the bottom of the ocean — an appropriate name for the coldest body known in the solar system.

Introducing Sedna: It's red, frigid and oh, so far away... but is it a planet?