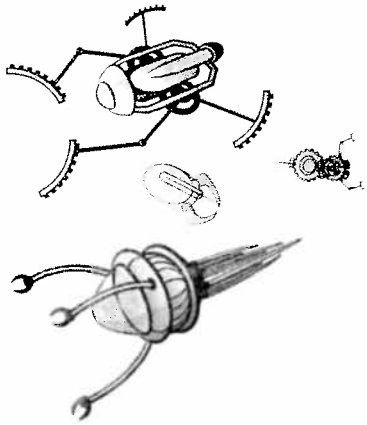
WEEK 32

Tiny Space Explorers

They float, creep, hop, and dig—and they're incredibly small! They're *nanorobots*—tiny robots racing into space to explore the universe. Scientists use the prefix "nano-," which means "one-billionth," to refer to objects that are very small. A nanometer, for instance, is one-billionth of a meter!

Why does **NASA** want smaller robots to handle space exploration? Smaller robots take up less room in a spacecraft and weigh less than larger robots. Building smaller robots means that less money is needed to send them into space. Best of all, these nanorobots will be able to explore planets and moons in ways that people cannot. Scientists are working on nanorobots that can jump around a planet's surface. They're finding ways to make tiny robots that will **penetrate** storms on other planets to help us learn more about their causes and effects. Scientists are even discovering how to send these miniature **metallic** creatures deep into the ground, seas, and ice of planets and their moons.

So what kinds of nanorobots can we expect to see in the coming years? How about a snakelike robot that tunnels into the ground to look deep below a planet's surface? Or a bouncing, four-legged robot about the size of a pencil box that can explore asteroids? NASA is even planning a robot that can dive into the **frigid** oceans on one of Jupiter's moons!



Still, these tiny robots are not perfect. One big problem is that they cool much more quickly than larger robots. You might think this is a good feature, since it would be difficult for the robots to overheat. While this could be useful in Earth's climate, the robots might freeze in the really cold temperatures of outer space. Heaters are not an **option**; they are too large for the tiny robots to carry. Scientists are working to solve this problem. Once they do, nanorobots can carry out their missions, and we can expect countless exciting discoveries!

MONDAY

Use the words from the passage to fill in the blanks.

frigid **metallic** **NASA** **option** **penetrate**

1. The spacecraft's shiny _____ covering gleamed in the sun.
2. The National Aeronautics and Space Administration, or _____, was founded in 1958.
3. If you want to go to college, your best _____ is to study hard.
4. A polar bear's thick fur keeps it warm even in _____ weather.
5. No sunlight could _____ the thick clouds above us.

TUESDAY

Write a caption for the picture in the passage.

WEDNESDAY

Choose the correct answer.

1. What was the author's purpose in writing this passage?
   - Ⓐ to frighten
   - Ⓑ to inform
   - Ⓒ to entertain
   - Ⓓ to persuade

2. Which of these is not a true statement about nanorobots?
   - Ⓐ Less money is needed to send them into space.
   - Ⓑ They overheat easily.
   - Ⓒ They can do things people cannot do.
   - Ⓓ They can move on land, in liquids, and in ice.

3. Based on information in this passage, you can infer that "nanotechnology" is a _____.
   - Ⓐ science of building very small machines
   - Ⓑ science of building huge spacecraft
   - Ⓒ science involving small living things
   - Ⓓ science using no technology

THURSDAY

Write F if the sentence is a fact. Write O if it is an opinion.

_____ Nanorobots provide the best way to explore space.

_____ Nanorobots take up less room in a spacecraft than larger robots do.

_____ Some nanorobots can jump and dig.

_____ NASA should work to develop even better nanorobots.

_____ Nanorobots are too small to carry their own heaters.

FRIDAY

Do you think robots could completely replace human astronauts? Explain your answer.