

## Too Close for Comfort

Zooming out for a faraway view sometimes gives us the best view.

Purpose: Distant views that cover a lot of area are often best for exploring large features.
Length: 15 minutes
Materials: Three sets of photos, four photos in each set, labeled on the back.

Students get a chance to identify a mystery object in a series of photos. They see an extreme close-up photo and guess what they're looking at. Each subsequent photo of the same object zooms farther and farther away.

First, discuss how perspective can change perception. Then give students a chance to see for themselves.

## Pre-Chat Time

What are some vantage points from which students have been able to look down on Earth? (top of a hill, tall building, airplane, etc.)

- Were students surprised by the view?
- What's the smallest thing they could see? The largest?
- Did they make any discoveries?

## The Investigation—What's the Mystery Object?

- Students break into three teams and move far
- enough apart so they can't hear each other.
- Each team receives one envelope of photos—but
- they shouldn't open it!
- Each team appoints a leader who will handle the envelope.
- Without letting anyone see the four photos, the leader finds and removes Photo A and lays it down so everyone can see it.
- Everyone independently and silently writes down their guesses about what the photo shows.
- This process is repeated with photos B, C, and D.

## **Chat Time**

- Can you think of something you can examine best up close?
- Do you know who or what has observed Earth from the farthest away? (Answer: satellites) Ask students to take a guess at how far. (Answers: from about 330 km to 1000 km [about 200 to 600 miles] depending on the satellite; the space station orbits at about 350 km [220 miles] above Earth)

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The teams switch envelopes and repeat the process until each group has made guesses about each photo. Then have students come back together as a group and compare their guesses.

- In the first photo, what did students think they were looking at?
- In the second?
- Why does zooming farther away make a difference?
- What are some features students noticed only from the farthest view?



































