THE SIXTH EXTINCTION?
THE BEST EVIDENCE
Argument 1: Rankings 2, 3, 1. Explanation: Answers may include that the fact of five mass extinctions in the past does not indicate that there is a mass extinction today. The second fact is supportive of the argument but is limited to one region. The last statement is most supportive of the argument that many species are disappearing today.

Argument 2: Rankings 1, 3, 2. Explanation: Answers may include that the first fact is supportive of the argument but is an association—just because increasing extinction rates correspond with the appearance of humans does not mean humans caused the extinction. The second fact, that volunteers teach whooping cranes, is an example of humans trying to prevent extinction. The last statement may be most supportive because the increase in extinctions is related to the presence of humans.

WHO’S AT RISK?
1. Amphibians have the highest percentage of threatened species.
2. The number of individuals remaining is low enough that the species is close to becoming at risk or likely to become threatened in the near future.
3. Amphibians tend to be small animals and may be hard to track and count in the wild.
4. Eighty percent of the species on Earth went extinct.
5. Answers may include that amphibians tend to be small animals and may be hard to track and count in the wild.

DINOSAUR EXTINCTION
1. Poisonous acid rain that was caused by the asteroid impact
2. Eighty percent of the species on Earth went extinct.
3. The asteroid impact pulverized marine rocks that are rich in sulfur. The tiny rock particles flew into the atmosphere, where they reacted with water vapor to form sulfuric acid. That chemical fell back to Earth as acid rain.
4. Life in the deep sea survived the asteroid impact.
5. Ferns, a plant that thrives in acidic conditions, flourished after the impact.

BUZZ OFF!
1. B
2. A
3. D
4. C
5. The barrier should be inexpensive and keep out elephants.

WIND CATCHER
SKY VS. LAND

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>BAT</th>
<th>Traditional wind turbine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Renewable or non-renewable resource</td>
<td>Renewable</td>
<td>Renewable</td>
</tr>
<tr>
<td>Design description</td>
<td>Turbine held inside a helium-filled shell anchored to the ground with cables</td>
<td>Giant fans on top of towers</td>
</tr>
<tr>
<td>Height (1,000 feet)</td>
<td>3,300 meters</td>
<td>140 meters (460 feet)</td>
</tr>
<tr>
<td>How it generates electricity</td>
<td>Winds turn the turbine, which turns a generator to create electricity</td>
<td>Winds turn the turbine, which turns a generator to create electricity</td>
</tr>
<tr>
<td>Installation time</td>
<td>A day</td>
<td>Months</td>
</tr>
<tr>
<td>Other (Answers will vary but may include amount of energy produced or ability to produce energy in low-wind conditions.)</td>
<td>Produces a smaller amount of energy but can produce electricity more reliably because they are high up, where winds are more stable</td>
<td>Produces more energy but can’t produce electricity when winds are not strong</td>
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1. Answers will vary but may include that BATs can produce electricity more reliably because they float higher, where winds are more stable, and they are cheaper, faster, and easier to install than traditional turbines.
2. Answers may include that traditional wind turbines are a better solution to provide electricity to more heavily populated areas because they produce more electricity.

FLYING HAZARD
1. D
2. A
3. A
4. C
5. Answers will vary but may include that airborne turbines may pose a smaller threat to bats. They are located higher in the sky and they don’t resemble trees, so bats may be less likely to approach them.

LIGHTER THAN AIR
1. The purpose of this passage is to explain the use of helium and hydrogen in lifting objects.
2. The first balloon was released in the late 1700s.
3. Hydrogen and helium are the two lightest elements.
4. Hydrogen is lighter and cheaper than helium.
5. Hydrogen is highly flammable. It might not be safe to use around a turbine that is connected to electrical equipment.

ENERGY COMPARISON
1. Hydropower
2. Wind energy
3. Solar energy, because it requires sunlight to produce enough electricity.
4. Hydropower plants can disrupt natural aquatic ecosystems.
5. Burning fossil fuels releases pollution, and fossil fuels are nonrenewable and will run out. Renewable energy sources don’t run out and release less pollution.

CAN SCIENCE SAVE YOUR ORANGE JUICE?
PROBLEM SOLVER
Answers will vary but may include:
PROBLEM
Citrus greening has infected an estimated 80 percent of Florida’s orange trees. The disease first appeared in Florida in 2005. The disease stunts the growth of the trees and eventually kills them. It spreads through insects.

SOLUTIONS:
1. Growers spray insecticides and release wasps to kill the psyllids that spread the disease. This doesn’t eliminate the insects completely, so it can’t stop the disease.
2. Growers heat trees to reduce the number of bacteria. This lengthens trees’ lives but doesn’t permanently cure the disease.
3. Scientists are inserting genes that cause the trees’ cells to produce chemicals that kill the bacteria. It may eventually work, but it will take a long time to make enough genetically engineered trees, and the fruit need to be proven safe for people to consume.

TASTE TEST
1. The Brix content is a measurement of the amount of dissolved solids (mostly sugars) in the juice.
2. The higher-ratio juice will taste less tart.
3. Linalool, a terpene, contributes to the scent of the peel.
4. The ester content in juice from diseased oranges is lower than in the juice from healthy oranges.
5. Answers may include that the juice may taste more bitter because it has more limonin, it may taste tart because it has a lower Brix/acid ratio, or it may taste less fruity because it has fewer esters.

FAIR-WEATHER FRUIT
1. B
2. D
3. A
4. A
5. Answers will vary but may include that if climate variability brings more below-freezing days to Florida, more orange trees may die.

WATER TRANSPORT
1. The stalk with leaves and no petroleum jelly
2. Petroleum jelly slowed transpiration in the celery leaves.
3. Water flows more slowly through trees when they lose their leaves. Transpiration occurs through the leaves. The celery stalk with no leaves had the slowest water flow.

CONTINUED ON NEXT PAGE
**MAGNESIUM IN THE BODY**

1. Most of the body's magnesium is stored in the bones.
2. Blood serum is the liquid part of the blood that is not blood cells.
3. Electrolytes are charged particles that help carry signals between cells in the body.
4. Magnesium helps muscles contract and relax normally. Without enough of the element, the muscles can become weak.
5. A study showed that people who ate a diet rich in magnesium had denser and stronger bones.

**FROM THE SEA**
1. Seawater is rich in magnesium; Magnesium is the third-most-abundant element in seawater.
2. Magnesium-containing minerals precipitate, or solidify, out of seawater and form rock deposits.
3. Only one metal—magnesium—is extracted from seawater.
4. Seawater is mixed with lime and left to sit. Solids settle to the bottom of the mixture. The solids are removed, washed, and heated to produce pure magnesium.
5. The main purpose of this passage is to explain how magnesium supplies are obtained from seawater.

**MADE OF MAGNESIUM**
1. Aluminum is denser than magnesium alloys. It has more mass in the same volume of metal and so is heavier.
2. Magnesium alloys are not very strong compared with other metals.
3. Magnesium alloys are 80 percent lighter than steel but are only half as strong.
4. Scientists have added rare-earth elements such as yttrium to the magnesium alloys to make them more temperature resistant.
5. A lightweight car requires less fuel to drive. That means less fossil fuel is burned and less pollution is created.

**NEWS QUIZ**

**CROSSWORD**

ACROSS

DOWN