PROFESSOR LUBEN has degrees in paleobotany and archaeology. Space archaeology is his specialty. What did you think “space archaeology” meant when you first read (or heard) of that discipline?

IF YOU COULD USE A SATELLITE to explore any region of Earth, which would you choose and why?

DR. FANCHON’S PORTABLE ARTIFACT NOTATION AND DATA ANALYZER (PANDA) can identify the origin, type, and age of artifacts, including fossils, pottery, and more. Recent upgrades allow the PANDAs to also analyze DNA. How could this ability to analyze DNA be useful to explorers?

TARYN TELLS THE STUDENTS ABOUT HALLOWEEN’S GAELIC ORIGINS. How is this type of information an important part of their education?

LANI DESIGNED THE PAPER JOURNAL to withstand crushing and explosions. It’s made out of reinforced goethite nanofiber. But why is it reasonable for the students to doubt its durability? Why does Lani, on the other hand, trust that it is still usable and not damaged?

LIKE A CRYPTOLOGIST, the author creates clues to help the reader figure out the mystery along with Cruz, and adds false leads to build suspense. For example, phrases like “Sometimes Emmett sounded more like a spy than an explorer,” or the fact that Emmett closely questioned Cruz about the location of the cipher, could make the reader question Emmett’s motives. How does the author give hints as to who might be working against Cruz?

WHY DOES CRUZ DECIDE TO TRUST HIS TEAMMATES with some information, but not everything? When have you ever withheld information from people closest to you? How hard is it to keep secrets from your family and best friends?

AN ANKH IS THE EGYPTIAN SYMBOL FOR LIFE. How did the ankh symbol play a role in the burial of the ancient Egyptian woman Shesepamuntayesher, laid to rest in three burial boxes?
LOOTING ANTIQUITIES “IS AS OLD AS THE PHARAOHS,” says Professor Luben. Looters sometimes even scatter the bones they find. Why would people desecrate graves and scatter priceless artifacts like this? Describe some of the many ways the work of archaeologists is different from that of looters.

During the 20th century, ONE OF HAWAII’S MAJOR CROPS WAS SUGARCANE. Why does Lani go to look for Cruz’s dad at Koloa, an old sugar mill? Why does she believe that would be a good place to hold a prisoner?

THE LIBRARY DATABASE AND CRUZ’S GPS pin project a line of blue dots onto the floor that he can follow through the stacks to find the book he wants to use for his research. How does this technology simplify his research? How might following a line on the floor instead of listening to verbal directions or reading a paper or digital map detract from skill-building in other areas?

MATERIALS ARCHITECTURE is the science of how different substances behave under different conditions. Cruz went to the library to research how materials change based on what stimuli they are exposed to. Why do you think he consulted books in a library as opposed to the internet? Do you prefer to do research with books in a library or online? What are the advantages and disadvantages of each?

SAILOR FIGURES OUT THAT THEY MAY BE ABLE TO REPAIR the origami journal not by doing the work themselves, but by letting the journal repair itself through photosynthesis, the process by which plants make food in order to grow. What is one of the materials that makes Sailor think this is possible for the journal?

CRUZ WITNESSES A NIGHT SKY FULL OF STREAKING METEORS: the Leonids, a meteor shower that occurs in November. As Bryndis points out, some people believe they bring bad luck. Why might people have once thought—or still think—this? Even though Cruz understands the scientific explanation for meteors, he gets a chill from Bryndis’s words. He says he’s not superstitious, but why might he still feel this way?

Cruz learns that THE ANCIENT CITY OF PETRA was one of many cities known as the “rose city.” Why might this be such a common name for a city? What nicknames does your city, town, or county have?

PHOTO 51 IS AN IMAGE OF DNA that 20th-century scientists used to determine the structure of DNA, the building blocks of all living organisms. Dr. Rosalind Franklin, whose team made the image, wasn’t credited with the achievement because two other scientists published the findings as their own. Why might it have taken so long for Franklin’s original finding to become public after the other scientists took credit? Why do some histories still fail to give her credit for the discovery? In terms of recognizing achievements, when might gender matter?

THE ANCIENT CITY OF PETRA, JORDAN, where Team Cousteau hopes to find the next cipher, has many magnificent ruins, including the Great Temple, the Treasury tomb, the Nabataean amphitheater, and the Byzantine church. The team initially suspects the cipher must be hidden in the Treasury. Why does Emmett exclaim, “Al-Khazneh!” when he sees the ancient tomb?

Why do Sailor and Emmett deceive the other tourists into thinking SAILOR HAS HEATSTROKE? Have you ever pretended to be ill in order to achieve a goal? How could this have backfired on Sailor and Emmett?

While taking a break in a shop, Cruz happens to notice a postcard of the MOSAIC ARTWORK IN THE BYZANTINE CHURCH and compares it to the birthmark on his wrist. He realizes the shapes resemble the double helix pattern of DNA. How much does luck versus skill influence Cruz’s eventual success? When was the last time you achieved something through a combination of luck and skill?