



On the next page, you will see 12 different alien creatures. Use the Creature Identification Key to identify the aliens. Write the names of the alien creatures in the blanks at the bottom of this page. *Note: These funny aliens with funny names are fictitious. At this time, there has not been alien life identified on Mars.*

CREATURE IDENTIFICATION KEY

1. Does it stand or walk on its legs?
If **YES**, go to question #6.
If **NO**, go to question #2.

7. Does it have *POINTED EARS*?
If **YES**, the alien is a **BELZARK**.
If **NO**, go to question #8.

2. Does it have *spots* on its skin?
If **YES**, the alien is a **SNERF**.
If **NO**, go to question #3.

8. Does it walk on 6 *LEGS*?
If **YES**, the alien is a **RUDARG**.
If **NO**, go to question #9.

3. Does it have *stripes* on its skin?
If **YES**, the alien is a **GORZAK**.
If **NO**, go to question #4.

9. Does it have *WINGS*?
If **YES**, the alien is a **SCHMELK**.
If **NO**, go to question #10.

4. Does it have 4 *Legs*?
If **YES**, the alien is a **MOG**.
If **NO**, go to question #5.

10. Does it have *THREE EYES*?
If **YES**, the alien is a **SNOOF**.
If **NO**, go to question #11.

5. Does it have a *FORKED TONGUE*?
If **YES**, the alien is a **BEM**.
If **NO**, go to question #6.

11. Does it have *FINGERS AND TOES*?
If **YES**, the alien is a **POG**.
If **NO**, go to question #12.

6. Does it have *HAIR* on its back and head?
If **YES**, the alien is a **WABBLER**.
If **NO**, go to question #7.

12. Does it have sharp *POINTED TEETH*?
If **YES**, the alien is a **BIZZLE**.
If **NO**, the alien is a **YAZBAT**.

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

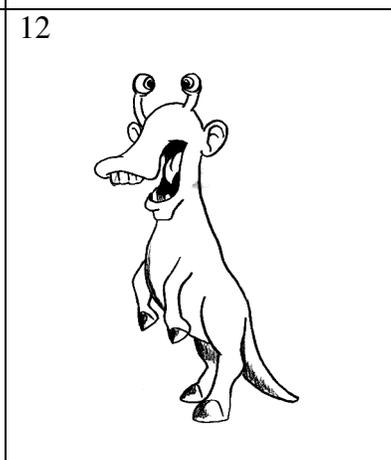
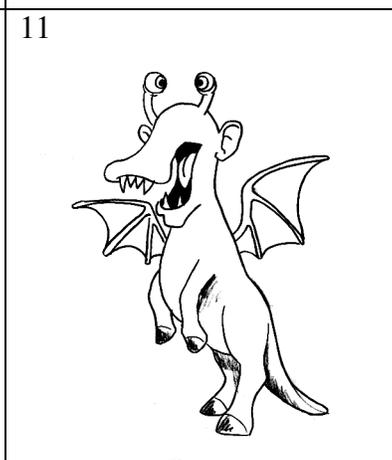
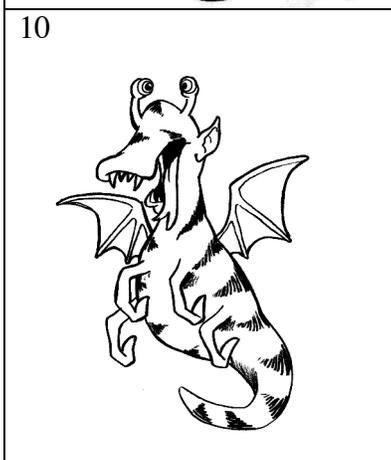
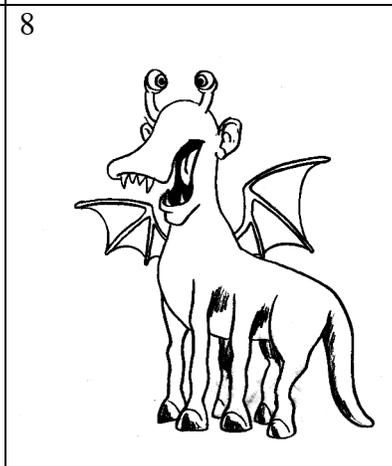
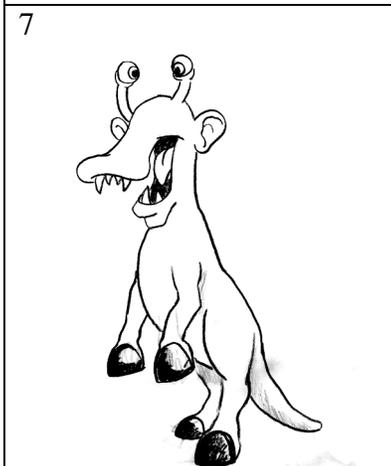
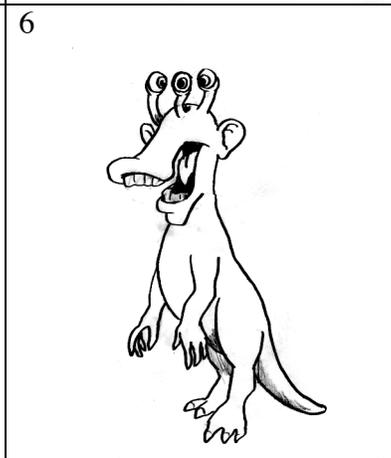
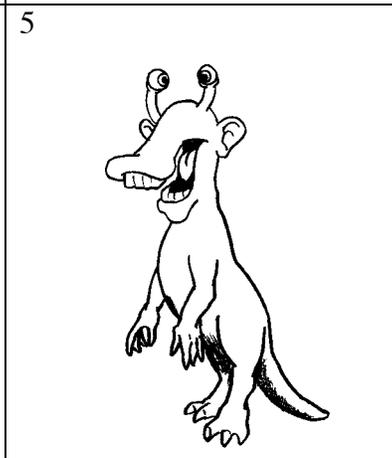
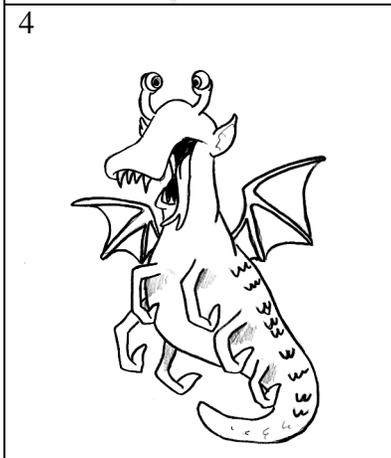
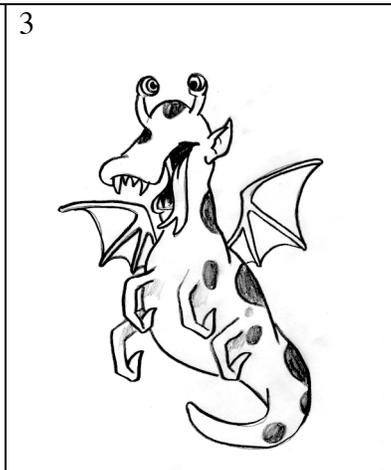
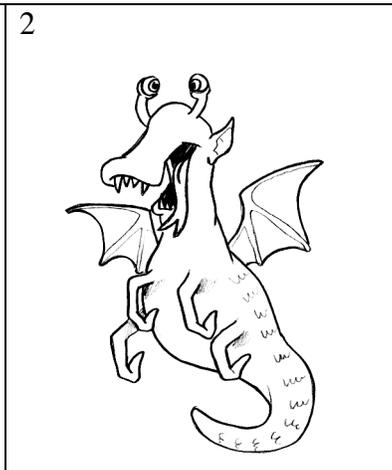
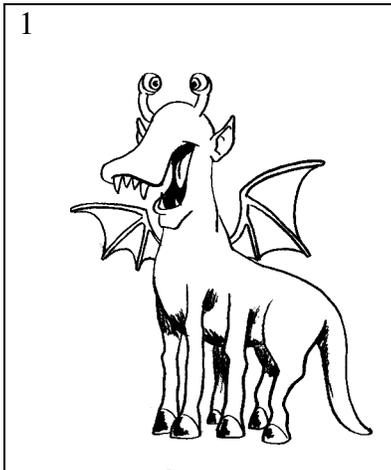
8. _____

9. _____

10. _____

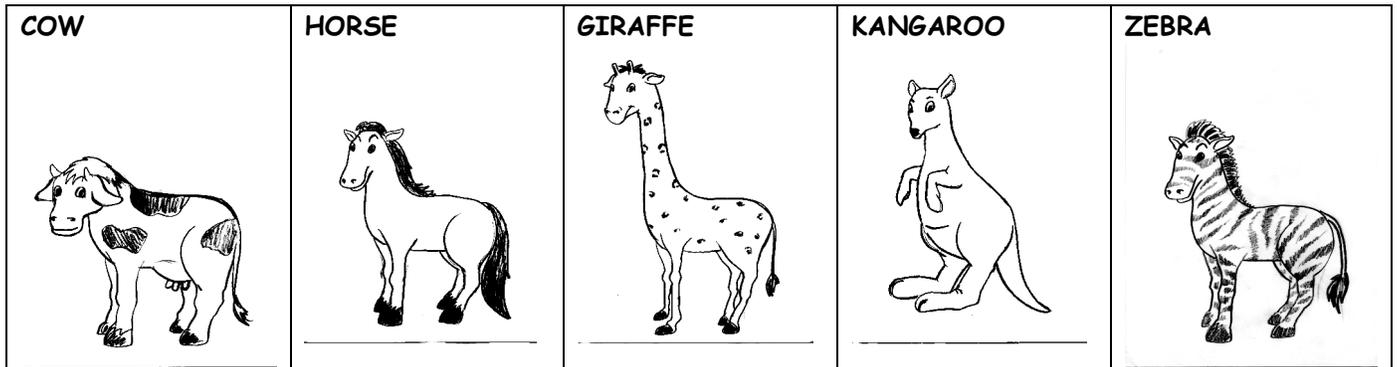
11. _____

12. _____



A Dichotomous Key (Di-kot-o-mus) is a tool used to identify things. They can be used for rocks, animals, plants... just about anything. At the Challenger Center, you will use it to find the identity of mysterious Martian rock samples. Today, you will get some practice.

DIRECTIONS: Now you will do the reverse of what you did before. Imagine you are an alien from another planet. You come to earth and encounter some strange organisms, pictured below. Your job is to write a dichotomous key to help the other people from your world identify these creatures. The key has been started for you.



1. Does the animal have an unusually long neck?

If yes, it is a _____

If no, go to question #2.

2. _____?

If yes, _____.

If no, _____.

3. _____?

If yes, _____.

If no, _____.

4. _____?

If yes, it is a _____.

If no, it is a _____.

Question: Would this key work if you encountered a **spider**? Explain.



TEACHER GUIDE: Dichotomous Key Identification



When I first heard the word, DICHOTOMOUS KEY, I thought, "Huh? What's that?" Then, when I saw an example of one, I said, "Oh! Those things! They're easy!" I am hoping this activity will demystify them for you also.

A **dichotomous key** is made up of pairs of descriptions or questions. By continuing to answer simple yes or no questions or descriptions, the user is eventually lead to the name of the organism. Dichotomous keys can be used for plants, birds, insects, rocks... you name it. It sometimes helps kids to start small, by classifying with easy or silly organisms, and then moving on. I hope that by working with the fictional monsters on this key, students will focus more on the **process** than the organism itself.

Historical Context:

In the 18th century, a Swedish scientist named Carolus Linnaeus came up with a way of classifying living things. He divided all things into two **kingdoms** - plant and animal. These kingdoms were then divided into smaller groups - kingdom, phylum, class, order, family, genus, and species. He also developed the method of giving organisms a two-part Latin Scientific name. For example, the scientific name of a wolf is *Cannis Lupus*. The naming of living things in an orderly manner according to how they are related is called **Taxonomy**. Dichotomous keys were developed to identify organisms using pairs of descriptions.

How does this tie into Challenger?

Students at the REMOTE station will use a dichotomous key to identify rock samples. By answering a series of yes or no questions, they will eventually name rocks picked up by the Mars Rover. This station was inspired by the NYS Exam In Middle Level Science question which uses a dichotomous key to identify insects.

Web Connection

I found a GREAT web site for explaining dichotomous keys to young people. It suggests more ways you can use them in your classroom. It also has an interactive online key for students to identify INSECTS (Which is what students are asked to do on the NYS Exam in Science!) Go here now and check it out!

<http://www.mdsg.umd.edu/Education/key/student1.htm>

Why YOU should do this activity:

From the New York State Intermediate Level Science Core Curriculum Guide Grades 5 - 8:

Process Skills Based on Standard 4: "(Students will) develop and use a dichotomous key."

STANDARD 4 The Living Environment, Key Idea #1: Living things are both similar to and different from each other and nonliving things.

Performance Indicator: Students describe the characteristics of and variations between living and nonliving things.

ANSWER KEY FOR STUDENT QUESTIONS:

- | | | | | | |
|------------|-----------|-------------|------------|-------------|------------|
| 1. Belzark | 2. Mog | 3. Snerf | 4. Bem | 5. Pog | 6. Snoof |
| 7. Bizzle | 8. Rudarg | 9. Wabblers | 10. Gorzak | 11. Schmelk | 12. Yazbat |