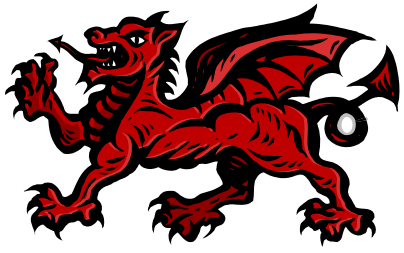

Building Beasts

Background:

Adaptations are structures or behaviors by which a species or individual improves its ability to survive in its environment. For example, bats have large ears and aerodynamically shaped noses to allow their high-pitched screeches to reach their ears easily. Zebra's stripes help them to confuse predators when travelling in large groups. Plants that live in dry environments have a thick layer called a cuticle to help them to retain water. In fact, nearly everything about an organism is an adaptation of one kind or another. Think of a trait that an animal has, and then think of how that trait helps it to survive and reproduce in its environment. Different adaptations are helpful for different environments: the white peppered moth was able to survive easily against the white bark of the tree; however, after the Industrial Revolution, the white coloration of the moth made it more easily seen by predators when against the soot-covered trunks of the trees, and their population began to decline.

Objective: To show your understanding of adaptations and how they determine survival of a species.

What You do:

Randomly create an organism and its environment with a roll of the die. Be creative - but try and stick to the rules of nature so you can demonstrate that you understand what adaptations are and how they help an organism survive in its environment. Adaptations must be realistic and exist in nature. No bionic hearing or laser vision!

Part 1: ROLL

Roll a die for each category to determine the conditions of your environment. Then roll it to determine the qualities of your beast. You **must** use these qualities; however, you may add more adaptations to ensure that your beast will survive with its adaptations within its environment. Each time you roll the dice **(A-C)** think about how this roll affects your beast. Create an adaptation for **A-C** that helps your beast survive in those environmental conditions. For roll **E**, be sure to describe what your beast eats based on the mouthparts you were assigned.

Part 2: THE DRAWING

Your drawing must be colorful and include all of the following criteria:

1. Draw the environment with all of its qualities in rolls **A-C**. At the bottom of your picture, write three lines describing your environment.

2. Name and draw your animal in this environment and don't forget to include the three additional adaptations it needs to survive for rolls **A-C**. Please label each adaptation with a sentence describing how it helps your organism within your environment

3. Create, draw, and label an organism that your beast could eat based on its mouthparts (roll **E**). Also create, draw, and label the organism that eats your beast (roll **F**).

Part 3:THE ESSAY

Your essay must be at least THREE paragraphs with a minimum of FIVE sentences each and must be written according to the following format:

1. **Environment**: Describe your environment in full detail. You should feel like you are standing in your environment as you describe the sights, sounds, smells, etc.

2. **Introduce your beast and its adaptations:** What is its name? What physical characteristics were predetermined (**roll D-F**)? Which characteristics did you add on to your beast to help it live in its environment (**rolls A-C**)**?**

3. **Introduce your predator and prey items:** What characteristics did you add to your beast to help it catch its prey (roll **F**) and escape from predators (roll **G**)? Describe the predator and prey that your beast interacts with in its environment in detail.

Part 4: THE PRESENTATION

You will present your beast in its environment to the class. Read your essay about your animal and how it's adapted to your environment OR Show your picture to the class and explain the environment and your beast's adaptations you have drawn.

Evolution:

Name: _____

Building Beasts

Roll the dice and circle the number shown on the dice for each of the following conditions or traits:

A) WHERE DOES IT LIVE? USE THIS SPACE TO JOT DOWN IDEAS FOR YOUR BEAST!
1 – mountains covered in ice and snow with cold, blustery winds
2 – dry desert with scorching hot days and freezing cold nights
3 – in the ocean or on the beach with frequent storms and warm weather
4 – on a small volcanic island with frequent eruptions and tropical climate
5 – swamp with standing water and sticky, humid air
6 - in a cave that is dark, damp, and cool

B) WHAT IS THE SOIL?
1 – large, jagged, loose rocks
2 – sandy soil with pools of quicksand everywhere
3 – solid densely packed soil that is difficult for beasts to burrow through
4 – dry, crunchy mud that caves in under foot
5 – sticky red clay that beasts sink in to and get stuck in
6 – slimy, slippery mud that is difficult to walk on

C) WHAT KIND OF VEGETATION IS PRESENT?
1 – tall trees with long branches and big leaves
2 – small dwarf trees and shrubs with tiny leaves and colorful flowers
3 – vines with thorns that grow along the ground
4 – short plants with thick succulent leaves to retain water
5 – low lying mosses and grasses
6 – thin tall straw-like grasses

D) WHAT KIND OF BEAST IS IT?
1 – a soft-bodied invertebrate
2 – a bird
3 – a reptile
4 – a large mammal
5 – a flying insect
6 – an amphibian

E) WHAT KIND OF EXOSKELETON/SKIN/FUR/FEATHER DOES IT HAVE?
1 – very thick
2 – colorful
3 – blended into the surroundings (camouflaged)
4 – layer of slime on top
5 – spikes or spines
6 – very thin

F) WHAT KIND OF MOUTHPARTS DOES IT HAVE/WHAT DOES IT EAT?
1 – piercing, sucking mosquito like mouth
2 – fangs that deliver venom
3 – flat teeth for grinding
4 – sharp pointy teeth for tearing and shredding
5 – large front teeth for clipping leaves 6 – no teeth for swallowing things whole

G) WHAT EATS IT/WHAT ARE ITS PREDATORS?
1 – *footeous maximus*: big footed creatures that chase and stomp beast flat
2 – *vampiro motheus*: lands on beast and sucks blood until dry
3 – *injectesect parasitus*: lays eggs on beast that burrow into and devour from inside out
4 – *vomitous spidereus*: vomits on beast and melts it with digestive fluids
5 – *steameus rolleus*: chases, rolls over and then devours beast
6 – *megamaggot grubbeus*: leaps out of the ground and swallows beast whole

Use this space to jot down ideas for your beast!

Building Beasts: CATASTROPHE!

Your beast has enjoyed a life of leisure in your current environment – playing with other beasts, frolicking in the lovely weather, eating lots of food and evading the predators in the area. Unfortunately, times are changing, and your beast must inherit a beneficial mutation or its species will die! Based on your first roll **(A)**, choose the appropriate catastrophe that will now affect your beast's environment.

Environment 1: The mountains that were once covered in ice and snow have experienced an unusually warm season caused by global warming. The snow and ice have melted creating raging rivers and streams all over the mountain as the water flows toward the valley below.

Environment 2: The polar ice caps have melted causing the sea levels to rise. The desert is now flooded with several inches of saltwater from nearby seas and saltwater organisms such as small clams and sea cucumbers now inhabit the sand.

Environment 3: Pollution from a nearby Cruise Ship collision has severely affected the quality of water in your environment, spilling oil everywhere, washing passenger's luggage and trash onto the beaches and creating floating "rafts" of debris.

Environment 4: The volcano on the island goes dormant and due to its location in the Northern Hemisphere, the island experiences an ice age. The island is blanketed in a thick layer of frigid ice, killing all vegetation.

Environment 5: A drought has come, causing all standing water to evaporate. The swamps and marshes in the area dry up and cause the sticky humidity of the air to disappear.

Environment 6: A rare meteor shower rains down on the land, opening a giant hole in the roof of the cave. The hole allows sunlight, fresh air, and other weather conditions to affect the interior of the cave.

Luckily, your beast population is growing in numbers, and new mutations are being introduced into the species often. Maybe they can survive!

Your Task:

Introduce a new mutation adapted to the new environmental conditions that may help your beast's species continue on for generations to come. You must complete **BOTH** portions below:

1. Draw a picture of your newly created beast and the environment **AFTER** the catastrophe.
2. Write two paragraphs with *at least* five sentences each.

a. Paragraph 1: Explain what has happened to your environment. What has happened to the vegetation? How about the predators and prey in the environment? Is the climate the same?

b. Paragraph 2: Give a detailed description of the new mutation you have given to your beast. How is this mutation beneficial to the survival of your beast? Explain how this adaptation is aligned with the new conditions in your environment.