

DESIGNER ANIMAL -- ANIMAL ADAPTATIONS

Name: Brad W. Thompson

Subject: Biology

Grade Level: 5

- Objectives:** 1.) Students will be able to distinguish between inherited traits and other characteristics resulting from interaction with the environment.
2.) Students will be able to make predictions about outcomes of genetic combinations.

Lesson Format: 1.) Begin lesson by talking about animals that have physical features that make them well suited to their environment (with older children: survival of the fittest). This includes animals that are camouflaged to their habitat, features that allow animals to survive in their climate, and features which allow animals to get food and defend themselves. Physical features include:

Elephant – trunk	Shark – sense of smell
Giraffe – neck	Hunting dogs - ears
Echidna – spines	Lion – color, claws
Gecko – fake tail	Polar bear – coat, color, claws
Kangaroo – hind legs	Bright colors indicating poisonous
Goat – surefootedness	Zebra – camouflage
Sloth – can be man-made	Skunk – smell

Animals gain and adapt their physical features over millions of years, but our task today is going to cut down that time just a little - you are going to design an animal which is perfectly suited to its environment.

- 2.) Give the students the background information listed below.
- 3.) Give the students the criteria necessary for their animal's design.
 - Size
 - What does it eat?
 - Where will it shelter?
 - How will it catch/obtain food and water?
 - How will it stay warm/cool?
 - How will it protect/defend itself from attackers?
- 4.) Divide the students into groups and give each group a planet. Give them the information on their planet and any animal type restrictions.
- 5.) Have each group work on their animals, but make sure the students know that every person in the group is responsible for turning in one animal.

Background Information: It is the future, the year 3000, and it is now possible for humans to build planets, and genetically engineer or create plants and animals to live on that planet. You are one of the scientists working on the animals, and it is your job to design and create an animal that will be perfectly suited to its environment on this new planet.

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PLANET 1

Name: Brad W. Thompson

Subject: Biology

Materials Needed: Pen, Pencil, or Marker; Paper

Background Information: It is the future, the year 3000, and it is now possible for humans to build planets, and genetically engineer or create plants and animals to live on that planet. You are one of the scientists working on the animals, and it is your job to design and create an animal which will be perfectly suited to its environment on this new planet.

Planet Environment: This planet is dark and cold most of the time. It is very mountainous. It rains almost all day. Because of the wet, dark conditions, the only plants that grow well are small mosses and funguses. Animals on this planet include a type of mouse, a nocturnal hunting large cat, fish, and a variety of insects.

Animal Criteria: 1.) Size.

2.) What does it eat.

3.) How does it catch/obtain food and water?

4.) How does it stay warm/cool?

5.) Where will it shelter?

6.) How does it protect/defend itself against attackers?

Animal Name:

Animal Drawing: Use the next page to draw and label your animal with the above criteria.

Animal Drawing

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PLANET 2

Name: Brad W. Thompson

Subject: Biology

Materials Needed: Pen, Pencil, or Marker; Paper

Background Information: It is the future, the year 3000, and it is now possible for humans to build planets, and genetically engineer or create plants and animals to live on that planet. You are one of the scientists working on the animals, and it is your job to design and create an animal which will be perfectly suited to its environment on this new planet.

Planet Environment: This planet is dry and hot. Most of the planet is flat. Water is found in underground streams but there is little water on the surface of the planet. Most of the planet's surface is covered in sand, although there are patches of dry grass. When plants can get their roots down into the water table, they grow into tall trees with leaves at the top but not along the trunk. Plants which are not connected to the water table are small and dry, but they are edible. Animals on this planet include insects, a species of birds which roost in the high trees, a sand-colored lizard and a type of rat.

Animal Criteria: 1.) Size.

2.) What does it eat.

3.) How does it catch/obtain food and water?

4.) How does it stay warm/cool?

5.) Where will it shelter?

6.) How does it protect/defend itself against attackers?

Animal Name:

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Animal Drawing

Planet Environments: 1.) This planet is dark and cold most of the time. It is very mountainous. It rains almost all day. Because of the wet, dark conditions, the only plants that grow well are small mosses and funguses. Animals on this planet include a type of mouse, a nocturnal hunting large cat, fish, and a variety of insects.

2.) This planet is dry and hot. Most of the planet is flat. Water is found in underground streams but there is little water on the surface of the planet. Most of the planet's surface is covered in sand, although there are patches of dry grass. When plants can get their roots down into the water table, they grow into tall trees with leaves at the top but not along the trunk. Plants that are not connected to the water table are small and dry, but they are edible. Animals on this planet include insects, a species of birds that roost in the high trees, a sand-colored lizard and a type of rat.

3.) This planet is tropical: wet and hot. Most of the planet is covered by rainforest. The planet is very flat. Water collects in large pools and lakes that have water in them all year 'round. A species of poisonous plant grows thickly on the ground. The spines of this plant are poisonous, and any animal that steps on one is sure to die. The vegetation is plentiful, and includes leaves, fruits and nuts. Animals include carnivorous snakes, varieties of insects, monkeys, fish and birds.

4.) This planet has a moderate climate. It never gets very hot or very cold, but stays mild all year 'round. It rains for part of the year and the water forms pools and lakes that dry up towards the end of the year and then the planet is very dry. The planet is partly mountainous and partly flat. Vegetation includes tall trees with high leaves and fruit, and a smaller plant that bears nuts. However, these nuts are inside hard shells that need to be removed before the nut can be eaten. Animals include rats and mice which live underground, insects, birds that nest in the tall trees, slow moving mammals which also live in the trees and a species of carnivorous nocturnal wolf.

Restrictions: Planet 1) No mice or cats.
Planet 2) No desert lizards or rats.
Planet 3) No snakes or monkeys.
Planet 4) No rats, mice or wolves.
All Planets: NO MYTHIC or FICTITIOUS BEINGS, NO HUMANS, and NO MAN-MADE OBJECTS.

Assessment: 1.) Has the student fulfilled all the parts of the task?
2.) Is it neatly presented and labeled?
3.) Has the student chosen features that will allow the animal to survive in this environment?

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PLANET 3

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Animal Criteria: 1.) Size.

2.) What does it eat.

3.) How does it catch/obtain food and water?

4.) How does it stay warm/cool?

5.) Where will it shelter?

6.) How does it protect/defend itself against attackers?

Animal Name:

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Animal Drawing

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PLANET 4

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Planet Environment: This planet has a moderate climate. It never gets very hot or very cold, but stays mild all year 'round. It rains for part of the year and the water forms pools and lakes which dry up towards the end of the year and then the planet is very dry. The planet is partly mountainous and partly flat. Vegetation includes tall trees with high leaves and fruit, and a smaller plant which bears nuts. However, these nuts are inside hard shells which need to be removed before the nut can be eaten. Animals include rats and mice which live underground, insects, birds that nest in the tall trees, slow moving mammals which also live in the trees and a species of carnivorous nocturnal wolf.

Animal Criteria: 1.) Size.

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