

SCIENCE·3D

DESERT MONSTER

In this packet, sample student answers are provided in **red** and notes to teachers are in **blue**.

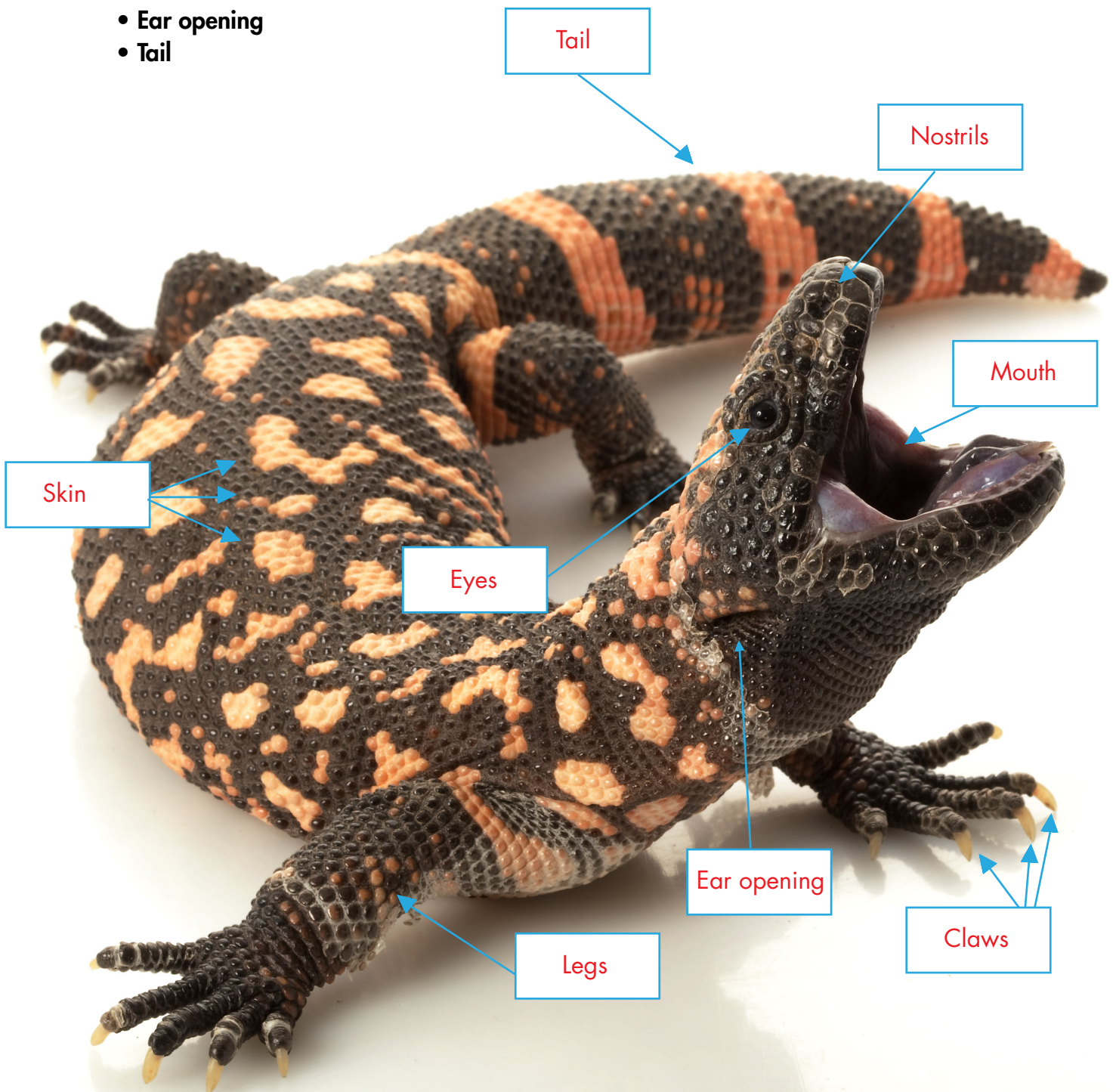
In this **Science Mission**, students will refresh their knowledge on the internal and external structures that help Gila monsters survive. Then, they will use a topographic map and data from the field to describe the desert habitat of Gila monsters and predict how they might respond to a change in the climate.



Activity 1: Gila Monster Body Parts

1. Use the following terms to fill in the boxes on the picture below.

- Skin
- Eyes
- Claws
- Mouth
- Legs
- Nostrils
- Ear opening
- Tail



2. In the table below, write how each structure helps the Gila monster survive or reproduce.

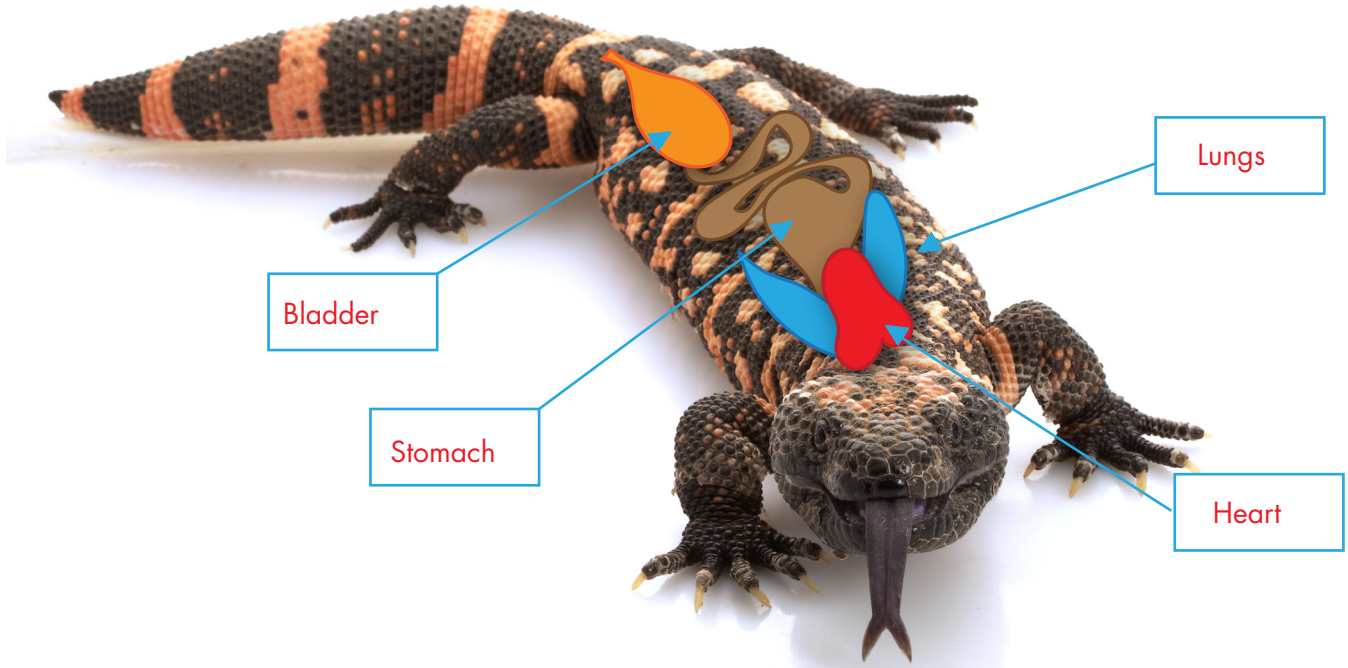
The structures listed below are not all mentioned in the **Reader**. This is intentional because we don't want students to simply search for answers. Based on their own experiences and what they learned from the **Reader** and video, should be able to determine structure. Assist students by having them think about the function of their own body parts.

Extend the lesson: have students discuss or compare and contrast what their body parts can do with those of the Gila monster. You can also ask students to think about one particular body part and how different animals might use a similar body part. For example, consider how Gila monsters, monkeys, and fish use their tails. (Gila Monster: to store fat, Monkey: for balance and sometimes grip, fish: to swim)

Structure	Function
Skin	Protection, color warns predators and helps them blend in
Legs	Walking, moving
Nostrils	Smell (food, water, predators)
Eyes	See their surroundings, find food, see predators
Ear opening	Hear sounds
Mouth	Eat food
Claws	Digging, climbing
Tail	Store fat

3. Use the following terms to fill in the boxes on the picture below.

Lungs, Heart, Stomach, Bladder



Structure	Function
Lungs	Breathe (get oxygen, remove carbon dioxide)
Heart	Pump blood
Stomach	Digest food
Bladder	Store water (remove waste)

Extend the lesson:

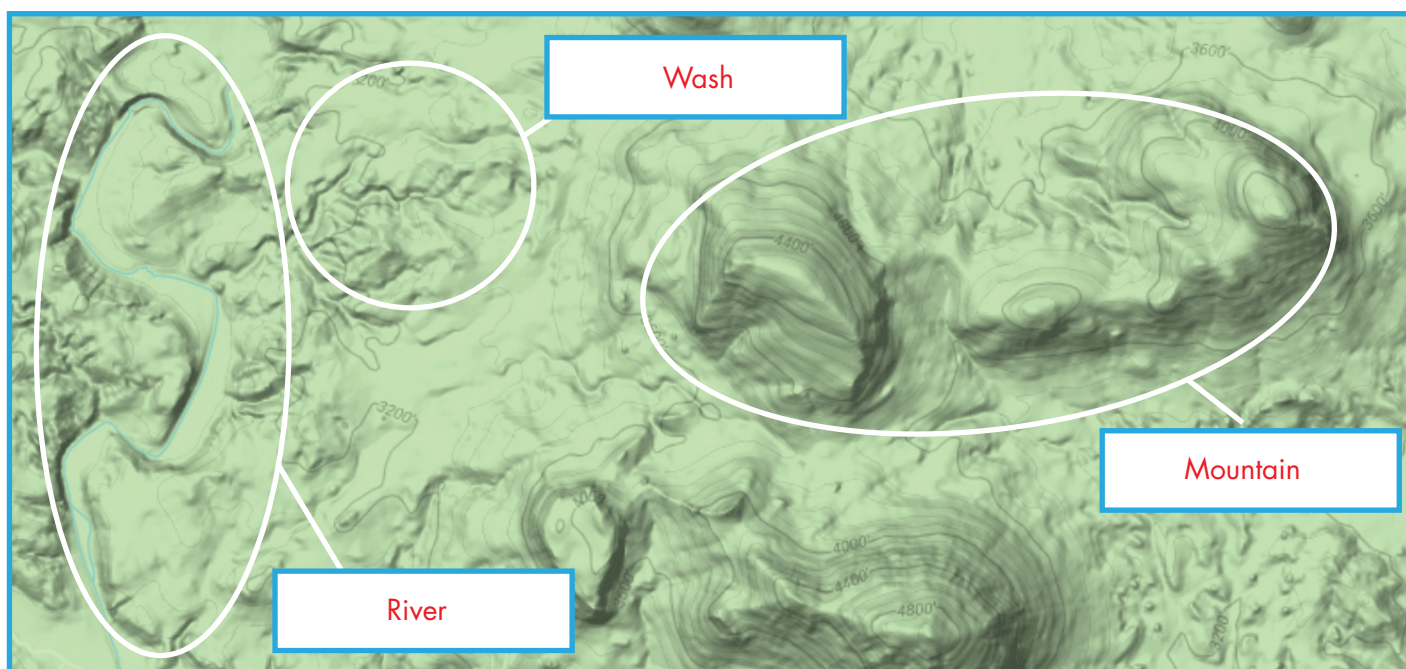
1. Have students draw a poster of an animal of their choice, or that you assign to them. Have them label at least six external structures of the animal. On their poster, have them describe the function of each structure. Have the students compare and contrast the structures with those of the Gila Monster.
2. Have students draw a plant of their choice, or that you assign them. Have them label the structures of the plant and the role of each part. Students could work in teams to create posters that they present to the class.

Activity 2: Gila Monster Habitat

Now that you know about the structures that help Gila monsters survive, it is time to investigate their habitat.

1. Use the following terms to fill in the boxes on the topographic map below.

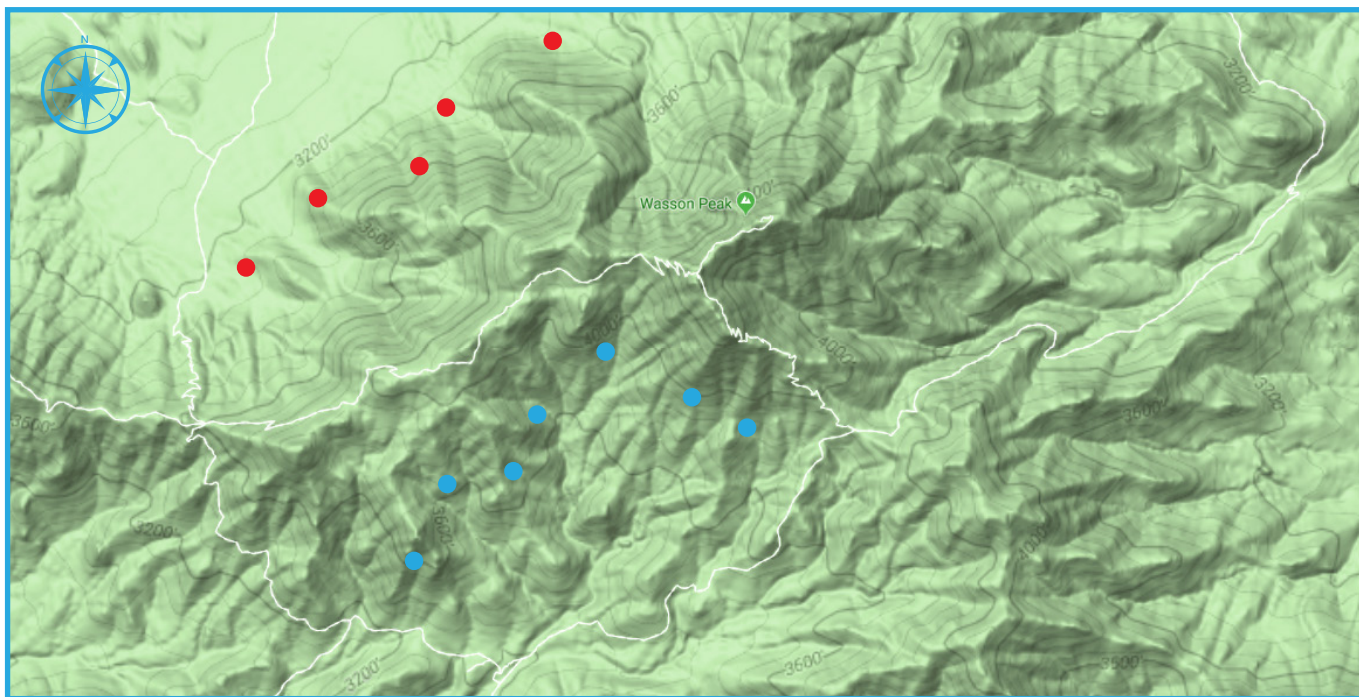
Wash, River, Mountain



2. In the table below **describe** the evidence you used from the map to label each landform.

Landform	Evidence
Mountain	The lines on the map are close together and they show the elevation is high.
Wash	There is an area where there are not trees that looks like a river but there is no water.
River	The map shows water in a channel.

The map below shows where Karla found ten of her Gila monsters in summer (red dots) and where she found them in winter (blue dots).



3. **Describe** how the Gila monsters change their use of the slopes of the hills from summer to winter. What evidence did you use from the map to make this claim?

Gila monsters used slopes more in winter. They were found on the south side of slopes in winter. I used the compass on the map and the elevation to support my claim.

Gila monsters are found on the south side of slopes in winter. This helps them get more direct sunlight to warm up. In summer, Gila monsters tend to be in areas where they can find relatively cooler habitats (even though they are still hot).

Activity 3: Gila Monster Responses to Different Conditions

Gila monsters need water and energy to survive. They can store a lot of water in their bladders. They can store a lot of energy in their tails. Karla has measured the amounts of water in the bladders and the sizes of the tails of many Gila monsters for several years. These measurements were taken right before the rainy season. She and other scientists also collected information on the desert. These data are in the table below. Remember, if Gila monsters run out of water or energy, they will die.

Table 1. Yearly average tail size and water remaining in the bladder of Gila monsters under different conditions in the environment

Year	Total Rainfall	Average Temperature	Size of Tail	Amount of Water in Bladder
1	High	Moderate	Large	Moderate
2	Moderate	High	Medium	Moderate
3	Low	High	Small	Low
4	Moderate	Moderate	Large	Moderate
5	Very Low	Very High	Very Small	Very Low

1. Based on the data in the table, **predict** what would happen to Gila monsters if the climate changed and there were many years in which rainfall was very low and average temperatures were very high. **Describe** the evidence in the table you used to make this prediction.

I predict they would die or have to move to a new location. In the year with very low rainfall and low average temperature, the Gila monsters had very small tails. This means they didn't have much energy. They also had very little water left which means they could die.

2. Based on the data in the table, **predict** what would happen to the number of Gila monsters in the area if the climate changed to have many years in which rainfall was high and average temperatures were moderate. Describe the evidence in the table you used to make this prediction.

I predict that the number of Gila monsters would go up. In these conditions, there is plenty of water and they have plenty of energy. That means they will survive and they can reproduce.