

# SCIENCE LESSON: DUNG BEETLES ANATOMY

## Essential Question:

How are dung beetle bodies different from human bodies?

## Lesson Objective:

To understand the general anatomy of an insect and how insect bodily structure differs from that of humans.

## Dung Beetle Anatomy

Dung beetles, like all insects, have a body made up of **three segments: head, thorax, and abdomen**. On a dung beetle's **head** are jaws called **mandibles**. Dung beetle larva have strong mandibles, so that they can chew through solid poop. The adults have small mandibles, which is why they mostly slurp up the soupy part of fresh poop. **Antennae** are also located on the head. The pom-pom shaped organs on the ends of Rainbow Scarab beetle antennae act as "a nose" and allow dung beetles to smell poop from far away. While humans and other large animals have simple eyes that have one lens, dung beetles have **compound eyes** with hundreds of individual lenses that look like a honeycomb. Each individual lens provides a bit of information about what it is seeing. Simple animal eyes produce clear pictures, but compound eyes give insects a very wide angle view and allow them to detect movement easily. This means that even though a human can clearly see a scarab beetle, they won't be able to easily sneak up on one! Male scarabs have a **horn** on their head, which they use to defend their nests. The **thorax** is the middle section of a beetle body. Dung beetles, like all insects, have **six legs**. While humans have feet on the ends of their legs, a dung beetle's legs end in an extremity that is designed for digging. Although Rainbow Scarab Beetles can fly, they are clumsy when they land, because their legs are short and strong with are good for digging. But they don't make for smooth landing! Rainbow Scarab Beetles also have a shield-like plate called a **pronotum**. Male beetles will use their shield to block their tunnels, preventing other males from coming in. Dung Beetles have wing covers (**elytra**) which protect their fragile **hind wings** and abdomen. This protective covering is important because these insects spend a lot of time digging through poop and dirt. The back end of a beetle is called the **abdomen** and it contains the heart, reproductive organs, and digestive organs.

## Lesson Discussion Questions:

- What are the three main body parts of an insect?
- How do dung beetles "smell"?
- How are beetle eyes different from human eyes?

## Materials:

- Copies of the attached Dung Beetle Anatomy Worksheet.
- Pencils
- Crayons if they want to color the beetle

## Activity:

Discuss the above information having students point at different body parts on their beetle. Then, work together to identify which body part should go on which line.

1. Antenna
2. Horn
3. Pronotum
4. Elytra
5. Eye
6. Leg
7. Wing

## Resources:

(2020, May 14). *All About Beetles*. Welcome Wildlife. <https://www.welcomewildlife.com/all-about-beetles>

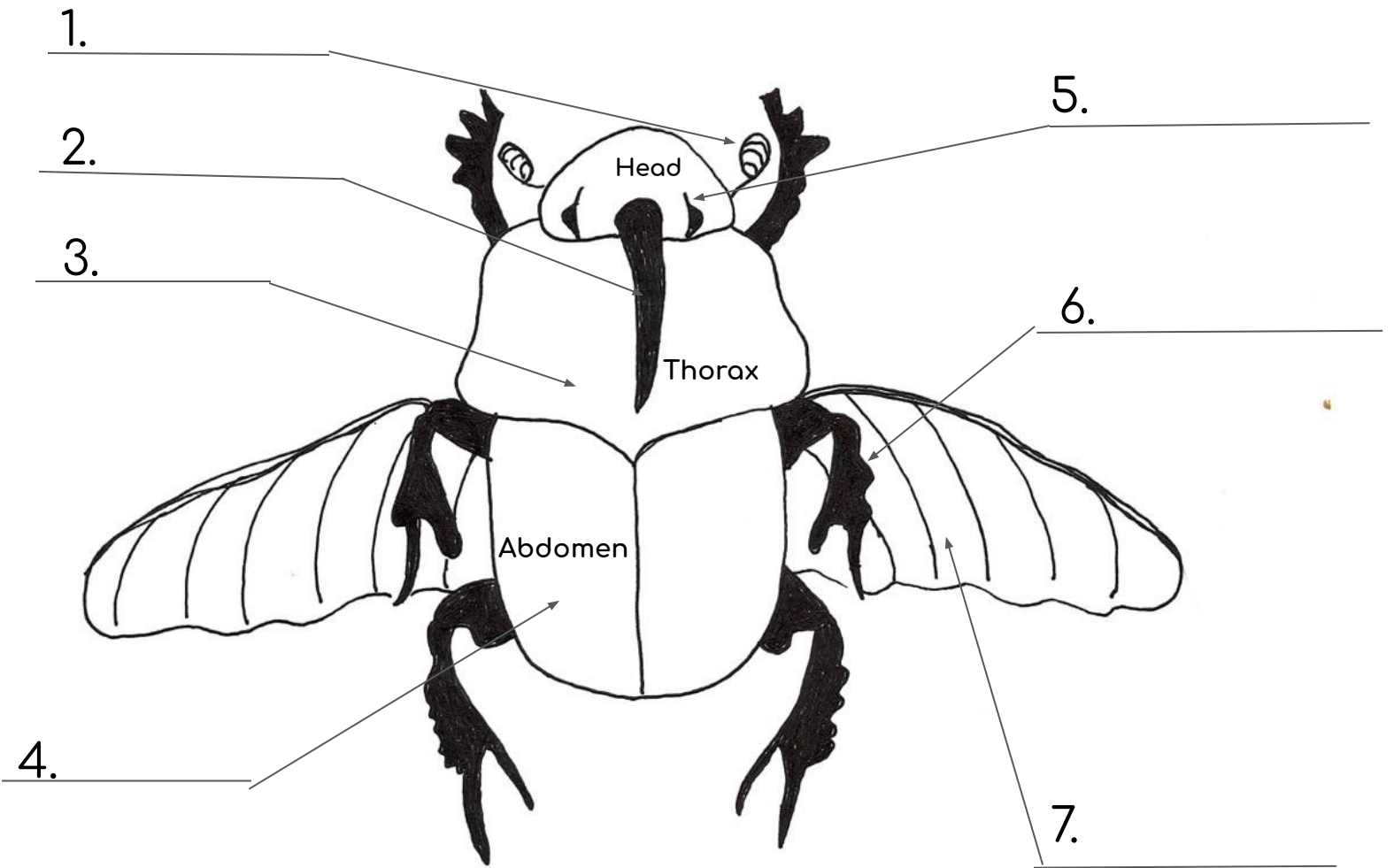
F. Krell, personal communication, December 5, 2020).

Amateur Entomologists' Society. <https://www.amentsoc.org/>.

(2020). Beetles - Beetle Anatomy And Physiology. Beetle Anatomy And Physiology - Legs, Pair, Called, and Wings - JRank Articles. <https://science.irank.org/pages/808/Beetles-Beetle-anatomy-physiology.html>

Name: \_\_\_\_\_

# Dung Beetle Anatomy



Write the body parts on the correct line:

Leg

Horn

Elytra

Eye

Wing

Pronotum

Antenna