

# SCIENCE 3D

## THE BLACK PANTHER

### SCIENCE PERFORMANCE EXPECTATIONS AND DISCIPLINARY CORE IDEAS

In the Elementary School Mission, students will address the general topics below. For a complete list of NGSS standards covered in each segment of the Mission, continue reading after the general standards. *Note: Be sure to complete the **Mission Reader** and **Mission Research** before viewing the full **Mission Video**. Explore [How to Use Science 3D](#) to get suggestions on how to pace the mission and options for the order of activities. Note: Math and Language Arts standards will be added shortly.*

- By exploring the story of Saya, a black panther, in the **Mission Reader** *The Black Panther* (NGSS Grade 3), students will learn about how offspring are similar and different from their parents and each other. They will also learn about life cycles of plants and animals, and how structures and behaviors help animals and other organisms survive.
- During **Mission Research**, students will complete diagrams of life cycles and use their understanding to support arguments for which offspring belong to which parents.
- In the **Science Mission**, students will use information from the reader and the video, as well as simple data from the field, to make predictions about what offspring will look like and why Saya's behavior may be different from leopards with typical coloration.
- In the **STEM Project**, students will enhance their math and data collection skills by measuring the distance between their steps when they walk at different speeds. They will use what they learn to understand how and why scientists study animal tracks.
- Using the **Explore Your Backyard** activity, students will investigate traits that help organisms survive in their environments. They will identify traits that are similar in different organisms.

#### SCIENCE/ENGINEERING AND DESIGN DISCIPLINARY CORE IDEAS AND PERFORMANCE EXPECTATIONS

##### MISSION READER

3-LS1-1	Develop models to describe how organisms have unique and diverse life cycles, but all have in common birth, growth reproduction, and death.
LS1.B	Growth and development of organisms.
3-LS2-1	Construct an argument that some animals form groups that help members survive.
LS2.D	Social interactions and group behavior.
3-LS3-1	Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation in these traits exists in a group of similar organisms.
LS3.A	Inheritance of traits: many characteristics are inherited from their parents.
LS3.B	Variation of traits: different organisms vary in how they look and function because of different inherited traits.
3-LS4-2	Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, reproduction.
LS4.B	Natural selection.
3-LS4-3	Construct an argument with evidence in a particular habitat some organism can survive well, some can survive less well, and some cannot survive at all.
LS4.B	Adaptation.
LS4.C	Natural selection.
3-ESS2-2	Obtain and combine information to describe climates in different regions of the world.

##### MISSION RESEARCH

LS3.A	Inheritance of traits: many characteristics are inherited from their parents.
LS3.B	Variation of traits: different organisms vary in how they look and function because of different inherited traits.
3-LS3-1	Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation in these traits exists in a group of similar organisms.
LS2.D	Social interactions and group behavior.
3-LS4-2	Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, reproduction.

**SCIENCE MISSION**

LS3.B	Variation of traits: different organisms vary in how they look and function because of different inherited traits.
3-LS3-1	Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation in these traits exists in a group of similar organisms.
3-LS4-2	Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, reproduction.
3-LS4-3	Construct an argument with evidence in a particular habitat some organism can survive well, some can survive less well, and some cannot survive at all.
LS4.B	Adaptation.

**STEM PROJECT**

LS3.B	Variation of traits: different organisms vary in how they look and function because of different inherited traits.
Additional content: Math, teamwork, data collection, recording and analysis.	

**EXPLORE YOUR BACKYARD**

LS3.B	Variation of traits: different organisms vary in how they look and function because of different inherited traits.
3-LS4-1	Use evidence to support the explanation that traits can be influenced by the environment.
3-LS4-2	Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, reproduction.
LS4.B	Adaptation.

**CROSS CUTTING CONCEPTS**

Patterns: [Mission Reader](#), [Mission Research](#), [Science Mission](#), [STEM Projects](#), [Explore Your Backyard](#)

Cause & effect/Mechanisms & predictions: [Mission Reader](#), [Mission Research](#), [Science Mission](#), [STEM Projects](#), [Explore Your Backyard](#)

Scale proportion and quantity: [Science Mission](#), [STEM Projects](#)

System and system models: [Mission Reader](#), [Science Mission](#)

Structure and function: [Mission Reader](#), [Mission Research](#), [Science Mission](#)

Stability and change: [Mission Reader](#), [Mission Research](#), [Science Mission](#)

**CONNECTION TO NATURE OF SCIENCE**

Scientific investigations use a variety of methods: [Science Mission](#), [STEM Projects](#)

Scientific knowledge is based on empirical evidence: [Science Mission](#), [STEM Projects](#)

Science models, laws, mechanisms and theories explain natural phenomena

Science is a way of knowing: [Mission Reader](#), [Mission Research](#), [Science Mission](#)

Scientific knowledge assumes an order and consistency in natural systems: [Explore Your Backyard](#)

Science addresses questions about the natural and material world: [Mission Reader](#), [Mission Research](#)

**SCIENCE AND ENGINEERING PRACTICES**

Asking questions and defining problems: [Mission Reader](#), [Science Mission](#), [STEM Projects](#)

Developing and using models: [Mission Reader](#)

Planning and carrying out investigations: [STEM Projects](#)

Analyzing and interpreting data: [Science Mission](#), [STEM Projects](#)

Using mathematics and computational thinking: [STEM Projects](#)

Constructing explanations and designing solutions: [Mission Research](#), [Science Mission](#), [STEM Projects](#), [Explore Your Backyard](#)

Engaging in argument from evidence: [Mission Research](#), [Science Mission](#), [STEM Projects](#), [Explore your Backyard](#)

Obtaining, evaluating and communicating information: [STEM Projects](#), [Explore Your Backyard](#)