

## ISTEP + Grade 4 Science Performance Level Descriptors

### *Pass +*

*Pass+* students demonstrate advanced understanding of the physical world and light, sound, heat, and electrical energy. They have a strong understanding that energy can be generated, moved, and transformed into other forms of energy. *Pass+* students have advanced understanding of Earth's materials: which ones serve as natural resources, what limitations there are, and how they can be used to our advantage. *Pass+* students describe adaptations that plants and animals have that make the organisms suited to the environment in which they live. *Pass+* students describe the forces acting on the motion of transportation systems in great detail, as well as the simple machines that make up those systems. *Pass+* students demonstrate advanced understanding when carrying out investigations through their use of tools, instruments, and recording data. *Pass+* students use a variety of skills to explain why results differ and they are able to interpret the reasonableness of results.

Examples of specific knowledge, skills, and abilities for Grade 4 students scoring at the *Pass+* level include, but are not limited to, the following:

- Evaluate and test the design of an investigation.
- Explain how changes in speed or

### *Pass*

*Pass* students demonstrate proficient understanding of the physical world and light, sound, heat, and electrical energy. They understand that energy can be generated, moved, and transformed into other forms of energy. *Pass* students have proficient understanding of Earth's materials: which ones serve as natural resources and what limitations there are. *Pass* students understand that plants and animals have adaptations that are suited to the environment. *Pass* students describe the forces acting on the motion of transportation systems, as well as some of the simple machines that make up those systems. *Pass* students demonstrate proficient skills when carrying out investigations through their use of tools, instruments, and recording data, and they understand that results of investigations may vary.

Examples of specific knowledge, skills, and abilities for Grade 4 students scoring at the *Pass* level include, but are not limited to, the following:

- Recognize that light travels as a straight line through air until it encounters an object.
- Describe how weathering changes Earth's land surface.
- Describe how adaptations enable

### *Did Not Pass*

*Did Not Pass* students demonstrate limited understanding of the physical world and light, sound, heat, and electrical energy. They have a basic understanding of Earth's materials. *Did Not Pass* students understand that plants and animals live in different environments, but struggle to recognize the adaptations that make them suited to their environment. *Did Not Pass* students have a basic understanding that there are forces acting on the motion of transportation systems. *Did Not Pass* students demonstrate limited understanding of the use of tools and instruments and of recording data when carrying out investigations.

Examples of specific knowledge, skills, and abilities for Grade 4 students scoring at the *Did Not Pass* level include, but are not limited to, the following:

- Recognize that heat, electricity, sound, and light are forms of energy.
- Know that sounds are caused by vibrations and can pass through solids, liquids, and gases.
- Recognize simple machines.
- Understand how to create a completed circuit.
- Use measurement skills to collect and record data.
- Read tables and graphs.

<p>direction are caused by forces.</p> <ul style="list-style-type: none"> <li>• Describe a way that a given plant or animal might adapt to the change arising from a human or non-human impact on its environment.</li> <li>• Explain ways in which human interaction with the natural environment has been beneficial or detrimental.</li> <li>• Demonstrate ways that energy can be generated and transferred.</li> <li>• Understand the relationship between the rate of vibrations and the loudness and pitch of sound.</li> </ul>	<p>plants and animals to survive in their environment.</p> <ul style="list-style-type: none"> <li>• Use fossils of plants and animals to describe environments that existed long ago.</li> <li>• Measure and compare the speeds of objects.</li> <li>• Keep accurate records.</li> <li>• Identify a need or a problem to be solved.</li> <li>• Understand the relationship between the rate of vibrations and the loudness and pitch of sound.</li> <li>• Sort rock samples into categories and identify rocks based on physical properties.</li> </ul>	<ul style="list-style-type: none"> <li>• Identify the common structures of a plant.</li> <li>• Understand that rocks are composed of different combinations of minerals.</li> </ul>
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