ADVANCED

A 5th grade student performing at Advanced effectively, consistently, and appropriately applies science and engineering practices to explain phenomena and design solutions to problems in the natural and the designed world. The student evaluates models and information and revises arguments and explanations by analyzing patterns in data, cause and effect relationships, and system interactions. The student conducts investigations to collect data in order to answer questions and uses criteria and constraints to evaluate solutions to a problem. The student uses mathematical and computational thinking and scientific reasoning to analyze and interpret data in order to evaluate arguments and explanations about cause and effect relationships.

PROFICIENT

A 5th grade student performing at Proficient effectively applies science and engineering practices to explain phenomena and design solutions to problems in the natural and the designed world. The student develops and uses models and information to construct arguments and explanations and to identify and describe patterns in data and system characteristics. The student asks questions that can be investigated and designs solutions to problems that meet given criteria and constraints. The student uses data and mathematical and computational thinking to construct arguments and explanations about cause and effect relationships.

BASIC

A 5th grade student performing at Basic applies, with support, science and engineering practices to explain phenomena and design solutions to problems in the natural and the designed world. The student uses models and information to support arguments and explanations, to identify patterns in data, and to describe relationships among parts of systems. The student identifies the data to collect in an investigation in order to answer questions or to describe possible solutions to problems. The student uses data and basic computational thinking to support arguments and explanations about cause and effect relationships.

BELOW BASIC

A 5th grade student performing at Below Basic seldom applies science and engineering practices to explain phenomena and design solutions to problems in the natural and the designed world. The student occasionally identifies models and information to identify patterns in data, and to describe parts of systems. The student infrequently recognizes trends in the data collected during an investigation in order to answer questions or to identify possible solutions to problems. The student occasionally uses data and basic computational thinking to explain the cause and effect relationships.

Physical Science	Below Basic	Basic	Proficient	Advanced
	A student who has reached	A student who has reached	A student who has reached	A student who has reached
	the level of <i>Below Basic</i>	the level of <i>Basic</i> is able to	the level of <i>Proficient</i> is able	the level of Advanced is able
	level is to successfully	successfully address some,	to successfully address	to successfully address
	address some, but not all, of	but not all, of the following:	some, but not all, of the	some, but not all, of the
	the following:		following:	following:
	Recognize a phase change of	Investigate a phase change of	Predict and investigate a	Use evidence from an
	water as a result of	water as a result of	phase change of water as a	investigation to explain a
	temperature change.	temperature change.	result of temperature	phase change of water as a
			change.	result of temperature
				change.
	Identify changes in the state	Describe evidence for	Use evidence to predict	Analyze and evaluate
	of matter as a result of	changes in the state of	changes in the state of	evidence to predict changes
	temperature change.	matter as a result of	matter as a result of	in state of matter as a result
		temperature change.	temperature change.	of temperature change.
	Identify or recognize that	Recognize a model that	Use or develop a model to	Evaluate models to explain
	matter is made of particles	describes that matter is	describe that matter is made	different types of matter
	too small to be seen.	made of particles too small	of particles too small to be	made of particles too small
		to be seen.	seen.	to be seen.
	Identify or observe	Investigate properties of	Use measurements to	Analyze measurement data
s	properties of materials.	materials.	identify materials by their	to identify materials based
cior			properties.	upon their properties.
act	Recognize changes in matter	Take measurements of	Provide evidence that matter	Argue using collected
Iter	such as weight and	matter such as weight and	is conserved during changes	evidence that matter is
L S	temperature during changes	temperature during changes	in substance.	conserved during changes in
a It	in substance.	in substance.		substance.
ano	State whether the mixing of	Investigate whether the	Investigate and describe	Investigate and provide
ter	substances produces a new	mixing of substances	whether the mixing of	evidence for whether the
lati	substance.	produces a new substance.	substances produces a new	mixing of substances
Δ			substance.	produces a new substance.
Ei K	Observe or describe an	Investigate an object's	Investigate an object's	Analyze observations and
ion ilit act	object's motion.	motion.	motion to predict future	measurements of an object's
loti pro nd ns ns			motion.	motion using evidence to
이 그 의 곳 S <				predict future motion.

	Identify effects of balanced and unbalanced forces on an object's motion.	Investigate effects of balanced or unbalanced forces on an object's motion.	Investigate and describe whether balanced or unbalanced forces change an object's motion.	Investigate evidence of balanced and unbalanced forces on an object's motion.
	Identify electric or magnetic interactions between two objects.	Describe electric or magnetic interactions between two objects.	Explain the electric or magnetic interaction between two objects.	Analyze the electric or magnetic interaction between two objects.
	Identify forces on an object moving on different surfaces.	Investigate forces on an object moving on different surfaces.	Investigate and predict forces on an object moving on different surfaces.	Investigate and analyze forces on an object moving on different surface.
	Recognize the gravitational force exerted by Earth on objects is directed toward the planet's center.	Identify evidence to support the gravitational force exerted by Earth on objects is directed toward the planet's center.	Use evidence to support the gravitational force exerted by Earth on objects is directed toward the planet's center.	Evaluate evidence to support the gravitational force exerted by Earth on objects is directed toward the planet's center.
	Recognize that force or mass affect motion.	Investigate to describe how force or mass affects motion.	Investigate to explain how force or mass affects motion.	Use evidence from an investigation to predict how force or mass affects motion.
	Identify a relationship between speed and energy of an object.	Describe a relationship between speed and energy of an object.	Explain a relationship between speed and energy of an object.	Use evidence to evaluate an explanation for a relationship between speed and energy of an object.
	Recognize energy transformation.	Identify evidence to describe energy transformation.	Use evidence to explain energy transformation.	Analyze and evaluate evidence to predict energy transformation
	Identify a device that converts energy from one form to another.	Describe a device that converts energy from one form to another.	Design, test, or refine a device that converts energy from one form to another.	Evaluate and refine an investigation or design for a device that converts energy from one form to another.
	Identify a simple machine.	Recognize a model of a simple machine.	Use a model to describe simple machines.	Evaluate a model to explain the relationship between simple machines and force.
Energy	Identify that energy in food comes from the sun.	Recognize a model showing energy in food comes from the sun.	Use a model to describe energy in food comes from the sun.	Evaluate a model to explain the relationship between simple machines and force.

plications in ormation	Identify wave properties.	Identify a model of wave properties.	Describe a model of wave properties.	Use a model to explain wave properties.
Waves and Their Al Technologies for In Transfer	Recognize objects can be seen only when light is reflected or when they produce their own light.	Identify a model showing objects can be seen only when light is reflected or when they produce their own light.	Use a model to show objects can be seen only when light is reflected or when they produce their own light.	Use a model to explain why objects can be seen only when light is reflected or when they produce their own light.

Life Science	Below Basic	Basic	Proficient	Advanced
	A student who has reached	A student who has reached	A student who has reached	A student who has reached
	the level of <i>Below Basic</i>	the level of <i>Basic</i> is able to	the level of <i>Proficient</i> is able	the level of Advanced is able
	level is to successfully	successfully address some,	to successfully address	to successfully address
	address some, but not all, of	but not all, of the following:	some, but not all, of the	some, but not all, of the
	the following:		following:	following:
	Recognize structures for	Use evidence to identify	Use evidence to explain	Analyze evidence to support
	support, survival, growth,	structures for support,	structures for support,	arguments that plants and
ses	behavior, and plant	survival, growth, behavior,	survival, growth, behavior,	animals have structures for
Se	reproduction.	and plant reproduction.	and plant reproduction.	support, survival, growth,
<u>o</u>				behavior, and plant
р р				reproduction.
au	Identify similarities and	Describe similarities and	Use evidence to explain	Support an argument with
n	differences between body	differences between body	similarities and differences	evidence to evaluate
rcti	systems.	systems.	between body systems.	similarities and differences
Stru				between body systems.
	Recognize life cycles of plants	Identify a model that	Use a model to describe life	Evaluate a model to explain
ism	and animals.	describes life cycles of plants	cycles of plants and animals.	life cycles of plants and
gan		and animals.		animals.
Ore	Recognize that plants	Identify evidence plants	Use evidence to support an	Use evidence and models to
\$ 2	primarily need air and water	primarily need air and water	argument that plants	support the argument that
les	to grow.	to grow.	primarily need air and water	plants primarily need air and
n n n n n n n n n n n n n n n n n n n			to grow.	water to grow.
101	Recognize animals respond	Identify a model of how	Use a model to describe how	Evaluate a model to explain
2	based on information	animals respond based on	animals respond based on	how animals respond based
	through their senses.	information through their	information through their	on information through their
<u> </u>		senses.	senses.	senses.
\$	Identify how matter moves	Recognize a model of how	Develop a model to describe	Evaluate a model to explain
erg	through organisms within an	matter moves through	how matter moves through	how matter moves through
ene s	ecosystem.	organisms within an	organisms within an	organisms within an
is: ns, nic		ecosystem.	ecosystem.	ecosystem.
em				
yst Dyn				
ntei nd				
9 L D				

	Identify characteristics	Use evidence to describe	Support a claim using	Use evidence to argue that
	inherited from parents or	characteristics inherited from	evidence to explain	some characteristics are
	influenced by the	parents or influenced by the	characteristics inherited from	inherited from parents or
S	environment.	environment.	parents or influenced by the	influenced by the
alt			environment.	environment.
	Identify variations in a	Recognize evidence of	Describe evidence of	Analyze evidence to explain
	species may increase survival	variations in a species may	variations in a species may	variations in a species may
	or reproduction.	increase survival or	increase survival or	increase survival or
		reproduction.	reproduction.	reproduction.
	Identify that some organisms	Identify evidence to describe	Use evidence to explain that	Use models and evidence to
	have adaptations to survive	that some organisms have	some organisms have	argue that some organisms
9	better in an ecosystem.	adaptations to survive better	adaptations to survive better	have adaptations to survive
300		in an ecosystem.	in an ecosystem.	better in an ecosystem.
	Recognize a solution to a	Use evidence to describe a	Use evidence to explain a	Evaluate evidence to
	problem with plants and	solution to a problem with	solution to a problem with	construct an explanation for
À.	animals caused when the	plants and animals caused	plants and animals caused	a solution to a problem with
	environment changes.	when the environment	when the environment	plants and animals caused
		changes.	changes.	when the environment
E				changes.

Earth and Space Science	Below Basic	Basic	Proficient	Advanced
	A student who has reached	A student who has reached	A student who has reached	A student who has reached
	the level of <i>Below Basic</i>	the level of <i>Basic</i> is able to	the level of <i>Proficient</i> is able	the level of <i>Advanced</i> is able
	level is to successfully	successfully address some,	to successfully address	to successfully address
	address some, but not all, of	but not all, of the following:	some, but not all, of the	some, but not all, of the
	the following:		following:	following:
	Recognize relationships	Observe and describe	Use evidence to support	Analyze evidence to support
	between amount of daylight	relationships between	explanations of the	a claim explaining the
	and time of year.	amount of daylight and time	relationships between	relationships between
		of year.	daylight and time of year	daylight and time of year.
	Recognize change in	Identify evidence for causes	Use a model to describe	Use a model and evidence to
	landscape over time.	for change in landscape over	evidence for changes in	explain changes in landscape
a		time.	landscape over time,	over time.
erse	Identify differences in	Identify evidence for	Use evidence to describe the	Argue using evidence from a
ovir	brightness among stars in the	differences in brightness	difference in brightness of	model that the difference in
Ĵ.	sky and the Sun.	among stars in the sky and	the Sun compared to other	brightness of the Sun
the		the Sun.	stars is due to distance,	compared to other stars is
. <u></u>				due to distance.
ace	Recognize daily patterns of	Describe observable daily	Graph data to reveal	Graph data to explain
	shadows and seasonal	patterns of shadows and	observable daily patterns of	observable daily patterns of
ch's	changes in the night sky.	seasonal changes in the night	shadows and seasonal	shadows and seasonal
iant		sky.	changes in the sky.	changes in the sky.
Ш				
	Recognize how natural	Investigate how natural	Investigate and provide	Use evidence from an
	processes shape Earth's	processes shape Earth's	evidence for how natural	investigation to evaluate how
	surfaces.	surface.	processes shape Earth's	natural processes shape
			surface.	Earth's surface.
	Describe the ways in which	Identify a model to describe	Develop a model to describe	Develop models to describe
	the four Earth spheres	the ways in which the four	the ways in which the four	multiple ways in which the
	interact.	Earth spheres interact.	Earth spheres interact.	four Earth spheres interact.
SE SE	Identify patterns in Earth's	Identify patterns found in	Use models to describe	Use models to analyze data
ste	features.	data to describe Earth's	patterns in data of Earth's	to explain patterns of Earth's
Sy		features.	features.	features.
h's	Identify reservoirs of water	Observe and describe	Describe and graph	Explain and graph differences
art	on Earth.	reservoirs of water on Earth,	differences in water	in water distribution on Earth.
ш			distribution on Earth.	

	Pocognizo tunical weather	Identify a model to represent	Lisa a model to describe	Lise a model to explain
	conditions.	data of typical weather	typical weather conditions.	typical weather conditions
		conditions.		and predict future
				conditions.
	Identify climates in different	Describe evidence of climates	Evaluate evidence of climates	Evaluate evidence to
	regions.	in different regions.	in different regions.	describe and predict climates
				in different regions.
	Recognize solutions to	Describe solutions to reduce	Generate and compare	Evaluate solutions to reduce
n Activity	reduce the impacts of natural	the impacts of natural Earth	solutions to reduce the	the impacts of natural Earth
	Earth processes on humans.	processes on humans.	impacts of natural Earth	processes on humans.
			processes on humans.	
	Identify a solution that	Recognize a claim to a	Create a claim to a solution	Analyze a claim to a solution
na	reduces the impacts of	solution that reduces the	that reduces the impacts of	that reduces the impacts of
- T	weather-related hazards.	impacts of weather-related	weather-related hazards.	weather-related hazards.
irth and I		hazards.		
	Identify a way to protect the	Describe evidence for a way	Combine information about	Combine information about
	environment.	to protect the environment.	ways to protect the	and argue for ways to protect
ŭ			environment.	the environment.

Engineering and Technology	Below Basic	Basic	Proficient	Advanced
Science	A student who has reached	A student who has reached	A student who has reached	A student who has reached
	the level of <i>Below Basic</i>	the level of <i>Basic</i> is able to	the level of <i>Proficient</i> is able	the level of <i>Advanced</i> is able
	level is to successfully	successfully address some,	to successfully address	to successfully address
	address some, but not all, of	but not all, of the following:	some, but not all, of the	some, but not all, of the
	the following:		following:	following:
	Identify design constraints	Describe the design	Define a simple design	Explain a simple design
	and criteria.	constraints and criteria.	problem, including	problem, including
			constraints and criteria.	constraints and criteria.
	Recognize a possible solution	Describe a possible solution	Generate and compare	Use several sources to
	to an engineering problem.	to an engineering problem.	multiple possible solutions to	generate and compare
ug			an engineering design	multiple possible solutions to
esi			problem.	an engineering problem.
0	Recognize ways to improve a	Carry out tests to improve a	Carry out tests to improve a	Carry out tests and analyze
rin	model or prototype.	model or prototype.	model or prototype by	data to improve a model or
ee			controlling variables.	prototype by controlling
ığır				variables and identifying
ш				failures.