

Science Word List

English–Japanese Vocabulary for New York Grades 6–8

Purpose. This list supports Japanese-speaking students and families learning middle school science vocabulary in Grades 6–8. It covers cells and ecosystems, Earth systems and space, matter and motion, and scientific investigation and engineering.

How to use it. Begin with the **Core** terms for labs, reading, and classroom discussion, then add the Useful terms as students analyze systems, explain evidence, and refine models or designs.

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Term count by area

Area	Terms
Life Science	36
Earth and Space Science	38
Physical Science	28
Scientific Inquiry and Engineering	26
Total	128

Life Science

English	日本語	よみ	Grade	Priority	Student note / use
cell	細胞	さいぼう	6-8	Core	basic unit of life
organism	生物	せいぶつ	6-8	Core	living thing made of one or more cells
tissue	組織	そしき	6-8	Core	group of similar cells working together
organ	器官	きかん	6-8	Core	body structure made of tissues
organ system	器官系	きかんけい	6-8	Core	group of organs working together
unicellular	単細胞	たんさいぼう	6-8	Useful	made of one cell
multicellular	多細胞	たさいぼう	6-8	Useful	made of many cells
membrane	膜	まく	6-8	Useful	thin layer around a cell
nucleus	核	かく	6-8	Useful	cell structure containing genetic material
cytoplasm	細胞質	さいぼうしつ	6-8	Useful	material inside the cell membrane
microscope	顕微鏡	けんびきょう	6-8	Core	tool used to observe very small objects
reproduction	生殖	せいしよく	6-8	Core	process of producing offspring
sexual reproduction	有性生殖	ゆうせいせいしよく	6-8	Useful	reproduction involving two parents
asexual reproduction	無性生殖	むせいせいしよく	6-8	Useful	reproduction involving one parent
heredity	遺伝	いでん	6-8	Core	passing of traits from parents to offspring
trait	形質	けいしつ	6-8	Core	characteristic of an organism
gene	遺伝子	いでんし	6-8	Useful	unit of hereditary information
DNA	ディーエヌエー	でいーえぬえー	6-8	Useful	molecule carrying genetic instructions
inherited trait	遺伝形質	いでんけいしつ	6-8	Core	trait passed from parent to offspring
variation	変異	へんい	6-8	Useful	difference among individuals of a species
life cycle	生活環	せいかつかん	6-8	Core	series of stages in an organism's life
ecosystem	生態系	せいたいけい	6-8	Core	community of organisms and their environment
population	個体群	こたいぐん	6-8	Core	group of the same species in one area
community	生物群集	せいぶつぐんしゅう	6-8	Core	all populations living together
biodiversity	生物多様性	せいぶつたようせい	6-8	Useful	variety of living things in an area
food web	食物網	しょくもつもう	6-8	Core	network of feeding relationships
producer	生産者	せいさんしゃ	6-8	Core	organism that makes its own food
consumer	消費者	しょうひしゃ	6-8	Core	organism that eats other organisms

decomposer	分解者	ぶんかいしゃ	6-8	Core	organism that breaks down dead matter
predator	捕食者	ほしよくしゃ	6-8	Useful	organism that hunts other organisms
prey	被食者	ひしよくしゃ	6-8	Useful	organism hunted by a predator
cell wall	細胞壁	さいぼうへき	6-8	Useful	rigid outer layer found in plant cells
chloroplast	葉緑体	ようりょくたい	6-8	Useful	cell part where photosynthesis happens in plants
mutation	突然変異	とつぜんへんい	6-8	Useful	change in genetic information
symbiosis	共生	きょうせい	6-8	Useful	close relationship between different organisms
competition	競争	きょうそう	6-8	Core	struggle between organisms for the same resources

Earth and Space Science

English	日本語	よみ	Grade	Priority	Student note / use
Earth system	地球システム	ちきゅうしすてむ	6-8	Core	interacting parts of the Earth
geosphere	地圏	ちけん	6-8	Useful	solid parts of Earth
hydrosphere	水圏	すいけん	6-8	Useful	all water on Earth
atmosphere	大気圏	たいぎけん	6-8	Core	layer of gases around Earth
biosphere	生物圏	せいぶつけん	6-8	Useful	parts of Earth where life exists
water cycle	水循環	みずじゅんかん	6-8	Core	movement of water through Earth systems
evaporation	蒸発	じょうはつ	6-8	Core	liquid changing to gas
condensation	凝結	ぎょうけつ	6-8	Core	gas changing to liquid
precipitation	降水	こうすい	6-8	Core	water falling from clouds
runoff	流出	りゅうしゅつ	6-8	Useful	water flowing over land
weathering	風化	ふうか	6-8	Core	breaking down of rock at the surface
climate	気候	きこう	6-8	Core	long-term pattern of weather
climate change	気候変動	きこうへんどう	6-8	Core	long-term shift in climate patterns
greenhouse effect	温室効果	おんしつこうか	6-8	Useful	warming caused by gases trapping heat
erosion	侵食	しんしょく	6-8	Core	movement of weathered material
deposition	堆積	たいせき	6-8	Core	dropping of sediments in a new place
sediment	堆積物	たいせきぶつ	6-8	Core	small pieces of rock or organic matter
landform	地形	ちけい	6-8	Core	natural feature of Earth's surface
plate tectonics	プレートテクトニクス	ぷれーとてくとにくす	6-8	Useful	theory explaining movement of Earth's plates

earthquake	地震	じしん	6-8	Core	shaking caused by movement in Earth's crust
volcano	火山	かざん	6-8	Core	opening where magma reaches the surface
solar system	太陽系	たいようけい	6-8	Core	sun and the objects that orbit it
galaxy	銀河	ぎんが	6-8	Core	large system of stars gas and dust
universe	宇宙	うちゅう	6-8	Core	all space and everything in it
gravity	重力	じゅうりょく	6-8	Core	force of attraction between masses
orbit	軌道	きどう	6-8	Core	path of one object around another
rotation	自転	じてん	6-8	Core	spinning of an object on its axis
revolution	公転	こうてん	6-8	Core	motion of one object around another
axis	軸	じく	6-8	Useful	imaginary line an object spins around
season	季節	きせつ	6-8	Core	part of the year caused by Earth's tilt and orbit
lunar phase	月の満ち欠け	つきのみちかけ	6-8	Useful	changing appearance of the Moon
eclipse	食	しょく	6-8	Useful	event when one object blocks light from another
geosphere	地圏	ちけん	6-8	Useful	solid Earth system including rocks soil and landforms
biosphere	生物圏	せいぶつけん	6-8	Useful	parts of Earth where living things exist
erosion	侵食	しんしょく	6-8	Core	movement of rock or soil by water wind ice or gravity
air mass	気団	きだん	6-8	Useful	large body of air with similar temperature and moisture
water cycle	水の循環	みずのじゅんかん	6-8	Core	continuous movement of water through Earth systems
greenhouse effect	温室効果	おんしつこうか	6-8	Useful	warming caused when certain gases trap heat in the atmosphere

Physical Science

English	日本語	よみ	Grade	Priority	Student note / use
matter	物質	ぶっしつ	6-8	Core	anything that has mass and takes up space
atom	原子	げんし	6-8	Core	smallest unit of an element
molecule	分子	ぶんし	6-8	Core	two or more atoms bonded together
element	元素	げんそ	6-8	Core	pure substance made of one kind of atom
compound	化合物	かごうぶつ	6-8	Core	substance made of two or more elements

mixture	混合物	こんごうぶつ	6-8	Core	combination of substances not chemically bonded
chemical change	化学変化	かがくへんか	6-8	Core	change that forms new substances
physical change	物理変化	ぶつりへんか	6-8	Core	change that does not form a new substance
density	密度	みつど	6-8	Core	mass per unit volume
particle	粒子	りゅうし	6-8	Useful	very small piece of matter
temperature	温度	おんど	6-8	Core	measure of average kinetic energy
force	力	ちから	6-8	Core	push or pull on an object
motion	運動	うんどう	6-8	Core	change in position over time
speed	速さ	はやさ	6-8	Core	distance traveled per unit time
velocity	速度	そくど	6-8	Useful	speed in a given direction
acceleration	加速度	かそくど	6-8	Useful	change in velocity over time
balanced force	つり合った力	つりあったちから	6-8	Core	forces that do not change motion
unbalanced force	つり合わない力	つりあわないちから	6-8	Core	forces that change motion
kinetic energy	運動エネルギー	うんどうえねるぎー	6-8	Useful	energy of motion
potential energy	位置エネルギー	いちえねるぎー	6-8	Useful	stored energy due to position or condition
thermal energy	熱エネルギー	ねつえねるぎー	6-8	Useful	energy associated with particle motion
energy transfer	エネルギー移動	えねるぎーいどう	6-8	Core	movement of energy from one object or system to another
solute	溶質	ようしつ	6-8	Useful	substance dissolved in a solution
solvent	溶媒	ようばい	6-8	Useful	substance that dissolves another substance
concentration	濃度	のうど	6-8	Useful	amount of solute in a given amount of solution
momentum	運動量	うんどうりょう	6-8	Useful	quantity of motion based on mass and velocity
work	仕事	しごと	6-8	Useful	transfer of energy when a force moves an object
power	仕事率	しごとりつ	6-8	Useful	rate at which work is done or energy is transferred

Scientific Inquiry and Engineering

English	日本語	よみ	Grade	Priority	Student note / use
investigation	調査	ちょうさ	6-8	Core	planned scientific study
hypothesis	仮説	かせつ	6-8	Core	testable explanation or prediction
independent variable	独立変数	どくりつへんすう	6-8	Useful	factor changed on purpose
dependent variable	従属変数	じゅうぞくへんすう	6-8	Useful	factor measured in response
control variable	制御変数	せいぎよへんすう	6-8	Useful	factor kept the same for a fair test

data	データ	でーた	6-8	Core	observations or measurements collected
qualitative data	質的データ	しつてきでーた	6-8	Useful	descriptive data not based on numbers only
quantitative data	量的データ	りょうてきでーた	6-8	Useful	numerical data that can be measured
evidence	証拠	しょうこ	6-8	Core	data used to support a claim
model	モデル	もでる	6-8	Core	representation of an object or system
conclusion	結論	けつろん	6-8	Core	statement explaining results of an investigation
engineering	工学	こうがく	6-8	Core	field focused on solving problems through design
criteria	評価基準	ひょうかきじゅん	6-8	Core	requirements a solution must meet
constraint	制約	せいやく	6-8	Core	limit on a design solution
prototype	試作品	しさくひん	6-8	Core	early model built for testing
optimize	最適化する	さいてきかする	6-8	Useful	improve a design to work better
trade-off	トレードオフ	とれーどおふ	6-8	Useful	benefit gained by giving up something else
system	システム	しすてむ	6-8	Core	set of interacting parts
input	入力	にゅうりょく	6-8	Useful	something put into a system
output	出力	しゅつりょく	6-8	Useful	something produced by a system
feedback	フィードバック	ふいーどぱっく	6-8	Useful	information used to adjust a system or design
accuracy	正確さ	せいかくさ	6-8	Core	how close a measurement is to the true value
precision	精密さ	せいみつさ	6-8	Core	how close repeated measurements are to one another
line graph	折れ線グラフ	おれせんぐらふ	6-8	Core	graph that shows change over time using connected points
iteration	反復改良	はんぷくかいりょう	6-8	Useful	repeated cycle of testing and improving a design
efficiency	効率	こうりつ	6-8	Useful	how well a system or design uses energy or materials to do its job

Earth and Space Science (sorted)

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climate	気候	きこう	6-8	Core	long-term pattern of weather
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community	生物群集	せいぶつぐんしゅう	6-8	Core	all populations living together
competition	競争	きょうそう	6-8	Core	struggle between organisms for the same resources
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variation	変異	へんい	6-8	Useful	difference among individuals of a species

Physical Science (sorted)

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acceleration	加速度	かそくど	6-8	Useful	change in velocity over time
balanced force	つり合った力	つりあったちから	6-8	Core	forces that do not change motion
energy transfer	エネルギー移動	えねるぎーいどう	6-8	Core	movement of energy from one object or system to another
force	力	ちから	6-8	Core	push or pull on an object
kinetic energy	運動エネルギー	うんどうえねるぎー	6-8	Useful	energy of motion
momentum	運動量	うんどうりょう	6-8	Useful	quantity of motion based on mass and velocity
motion	運動	うんどう	6-8	Core	change in position over time

potential energy	位置エネルギー	いちえねるぎー	6-8	Useful	stored energy due to position or condition
power	仕事率	しごとりつ	6-8	Useful	rate at which work is done or energy is transferred
speed	速さ	はやさ	6-8	Core	distance traveled per unit time
thermal energy	熱エネルギー	ねつえねるぎー	6-8	Useful	energy associated with particle motion
unbalanced force	つり合わない力	つりあわないちから	6-8	Core	forces that change motion
velocity	速度	そくど	6-8	Useful	speed in a given direction
work	仕事	しごと	6-8	Useful	transfer of energy when a force moves an object
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compound	化合物	かごうぶつ	6-8	Core	substance made of two or more elements
concentration	濃度	のうど	6-8	Useful	amount of solute in a given amount of solution
density	密度	みつど	6-8	Core	mass per unit volume
element	元素	げんそ	6-8	Core	pure substance made of one kind of atom
matter	物質	ぶっしつ	6-8	Core	anything that has mass and takes up space
mixture	混合物	こんごうぶつ	6-8	Core	combination of substances not chemically bonded
molecule	分子	ぶんし	6-8	Core	two or more atoms bonded together
particle	粒子	りゅうし	6-8	Useful	very small piece of matter
physical change	物理変化	ぶつりへんか	6-8	Core	change that does not form a new substance
solute	溶質	ようしつ	6-8	Useful	substance dissolved in a solution
solvent	溶媒	ようばい	6-8	Useful	substance that dissolves another substance
temperature	温度	おんど	6-8	Core	measure of average kinetic energy

Scientific Inquiry and Engineering (sorted)

English	日本語	よみ	Grade	Priority	Student note / use
constraint	制約	せいやく	6-8	Core	limit on a design solution
criteria	評価基準	ひょうかきじゆん	6-8	Core	requirements a solution must meet
efficiency	効率	こうりつ	6-8	Useful	how well a system or design uses energy or materials to do its job
engineering	工学	こうがく	6-8	Core	field focused on solving problems through design
feedback	フィードバック	ふいーどばっく	6-8	Useful	information used to adjust a system or design
input	入力	にゅうりょく	6-8	Useful	something put into a system

iteration	反復改良	はんぷくかいりょう	6-8	Useful	repeated cycle of testing and improving a design
optimize	最適化する	さいてきかする	6-8	Useful	improve a design to work better
output	出力	しゅつりょく	6-8	Useful	something produced by a system
prototype	試作品	しさくひん	6-8	Core	early model built for testing
system	システム	しすてむ	6-8	Core	set of interacting parts
trade-off	トレードオフ	とれーどおふ	6-8	Useful	benefit gained by giving up something else
accuracy	正確さ	せいかくさ	6-8	Core	how close a measurement is to the true value
conclusion	結論	けつろん	6-8	Core	statement explaining results of an investigation
control variable	制御変数	せいぎょへんすう	6-8	Useful	factor kept the same for a fair test
data	データ	でーた	6-8	Core	observations or measurements collected
dependent variable	従属変数	じゅうぞくへんすう	6-8	Useful	factor measured in response
evidence	証拠	しょうこ	6-8	Core	data used to support a claim
hypothesis	仮説	かせつ	6-8	Core	testable explanation or prediction
independent variable	独立変数	どくりつへんすう	6-8	Useful	factor changed on purpose
investigation	調査	ちょうさ	6-8	Core	planned scientific study
line graph	折れ線グラフ	おれせんぐらふ	6-8	Core	graph that shows change over time using connected points
model	モデル	もでる	6-8	Core	representation of an object or system
precision	精密さ	せいみつさ	6-8	Core	how close repeated measurements are to one another
qualitative data	質的データ	しつてきでーた	6-8	Useful	descriptive data not based on numbers only
quantitative data	量的データ	りょうてきでーた	6-8	Useful	numerical data that can be measured