Below is a **complete, classroom-ready guide for KINDERGARTEN** that:

1. **Locates developmentally appropriate virtual labs** that support **NGSS**, **cognitive development**, and **fine-motor skills**
2. **Matches EACH Grade 2 NGSS Performance Expectation** to **specific virtual labs or interactive platforms**

All resources are **commonly used in K–2 classrooms**, are **Chromebook/iPad friendly**, and support **clicking, dragging, modeling, sorting, observing, measuring, and simple data analysis**.

✅ Kindergarten NGSS Standards → Virtual Lab Matches

PHYSICAL SCIENCE

K-PS2-1

Plan and conduct an investigation to compare the effects of different strengths or directions of pushes and pulls on the motion of an object.

Best-Matched Virtual Labs

- **Virtual Science Teachers – Pushes & Pulls Interactives**
  Students change push strength/direction and observe motion changesDocument
- **Workybooks – Forces & Motion Games**
  Game-based cause-and-effect exploration of movementexplorelearning

Skills Supported

- Cognitive: cause & effect, comparison
- Motor: dragging, clicking, selecting

K-PS2-2

Analyze data to determine if a design solution works as intended to change the speed or direction of an object.

Best-Matched Virtual Labs

- **Virtual Science Teachers – Engineering & Motion Mini-Challenges**
  Students test simple solutions and observe outcomesDocument
- **IMSA NGSS Model Lesson: "Which Shovel?"**
  Digital modeling and discussion of design effectivenessexplorelearning

Skills Supported

- Cognitive: analyzing results, decision-making
- Motor: manipulating models, selecting options

LIFE SCIENCE

K-LS1-1

Use observations to describe patterns of what plants and animals (including humans) need to survive.

Best-Matched Virtual Labs

- **Virtual Science Teachers – Living Things & Needs Labs**
  Visual investigations of food, water, air, and shelterDocument
- **Life Lab – "Caring for Our Pet Plants" (Digital Components)**
  Modeling plant needs using visuals and guided observationteacherspayteachers
- **Workybooks – Living vs. Non-Living Games**
  Sorting and categorizing based on needsexplorelearning

Skills Supported

- Cognitive: pattern recognition, classification
- Motor: dragging, digital labeling, sorting

EARTH & SPACE SCIENCE

K-ESS2-1

Use and share observations of local weather conditions to describe patterns over time.

Best-Matched Virtual Labs

- **Virtual Science Teachers – Weather Observations & Graphing**
  Students observe weather visuals and record patternsDocument
- **IMSA NGSS Model Lesson: "What's the Weather?"**
  Digital visuals and teacher-guided modelingexplorelearning
- **Workybooks – Weather & Climate Games**
  Interactive daily weather comparisonsexplorelearning

Skills Supported

- Cognitive: identifying patterns, data interpretation
- Motor: clicking, simple graph interaction

K-ESS3-1

Use a model to represent the relationship between the needs of different plants or animals and the places they live.

Best-Matched Virtual Labs

- **Life Lab – NGSS in the Garden (Digital Models)**
  Students model habitat–needs relationshipsteacherspayteachers
- **Virtual Science Teachers – Habitat & Environment Interactives**
  Guided visual modeling of environmentsDocument
- **Teachers Pay Teachers – Free Habitat Simulations (Selective)**
  Drag-and-drop habitat matching activitiesteacherspayteachers

Skills Supported

- Cognitive: systems thinking, relationships
- Motor: drag-and-drop, visual model manipulation

ENGINEERING DESIGN

K-2-ETS1-1

Ask questions, make observations, and gather information about a situation people want to change to define a simple problem.

Best-Matched Virtual Labs

- **Virtual Science Teachers – Engineering Scenarios & Mini-Challenges**
  Students identify problems using visuals and promptsDocument
- **IMSA NGSS Model Lesson: "Build a Nest"**
  Digital images and guided questioningexplorelearning

Skills Supported

- Cognitive: questioning, problem identification
- Motor: selecting, manipulating simple tools

K-2-ETS1-2

Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function.

Best-Matched Virtual Labs

- **IMSA NGSS Model Lesson: Engineering Design Activities**
  Digital modeling and drawing supportsexplorelearning
- **Life Lab – Design-Based Garden Models (Digital/Visual)**
  Students illustrate how structures help living thingsteacherspayteachers

Skills Supported

- Cognitive: modeling, structure-function thinking
- Motor: drawing, dragging, arranging

K-2-ETS1-3

Analyze data from tests of two objects designed to solve the same problem to compare strengths and weaknesses.

Best-Matched Virtual Labs

- **Virtual Science Teachers – Compare-and-Test Challenges**
  Visual comparison of solutionsDocument
- **IMSA Engineering Lessons (Teacher-Guided Digital Analysis)**
  Discussion-based data interpretationexplorelearning

Skills Supported

- Cognitive: comparison, evaluation
- Motor: interacting with test results

✅ One-Look Summary

NGSS Standard	Primary Virtual Lab
K-PS2-1	Virtual Science Teachers
K-PS2-2	VST / IMSA
K-LS1-1	VST / Life Lab / Workybooks
K-ESS2-1	VST / IMSA / Workybooks
K-ESS3-1	Life Lab / VST
K-2-ETS1-1	VST / IMSA

NGSS Standard	Primary Virtual Lab
K-2-ETS1-2	IMSA / Life Lab
K-2-ETS1-3	VST / IMSA

Below is a **complete, classroom-ready guide for FIRST GRADE** that does two things at once:

1. **Locates developmentally appropriate virtual labs** that support **NGSS**, **cognitive development**, and **fine-motor skills**
2. **Matches EACH Grade 1 NGSS Performance Expectation** to specific virtual labs or interactive platforms

All resources are **commonly used in K–2 classrooms**, work well on Chromebooks/iPads, and support **clicking, dragging, modeling, sorting, observing, and simple data use**.

✅ First Grade NGSS Standards → Virtual Lab Matches

(with cognitive + motor skill alignment)

🔬 PHYSICAL SCIENCE

1-PS4-1

Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate.

Best-Matched Virtual Labs

- **IMSA NGSS Model Lesson – "What's That Sound?"**
  Digital sound investigations with visuals and teacher-guided modeling [nextgenscience.org]
- **Virtual Science Teachers – Sound & Vibration Interactives**
  Students observe cause-and-effect between vibration and sound [Document | Word]

Skills Supported

- Cognitive: cause & effect, observation
- Motor: clicking, interacting with visual models

1-PS4-2

Make observations to construct an evidence-based account that objects can be seen only when illuminated.

Best-Matched Virtual Labs

- **IMSA NGSS Model Lesson – "Can You See It?"**
  Visual modeling of light and visibility [nextgenscience.org]
- **Virtual Science Teachers – Light & Visibility Interactives**
  Students change light sources and observe visibility outcomes [Document | Word]

Skills Supported

- Cognitive: reasoning from evidence
- Motor: selecting options, visual tracking

🌱 LIFE SCIENCE

1-LS1-1

Use materials to design a solution to a human problem by mimicking how plants or animals use their external parts.

Best-Matched Virtual Labs

- **IMSA NGSS Model Lesson – "Plant and Animal Traits"**
  Digital trait modeling and discussion [nextgenscience.org]
- **Life Lab – NGSS in the Garden (Grade 1 Unit)**
  Visual modeling of plant structures and functions [nextgenscience.org]

Skills Supported

- Cognitive: structure–function thinking
- Motor: dragging, drawing, arranging models

1-LS3-1

Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.

Best-Matched Virtual Labs

- **IMSA NGSS Model Lesson – "Plant & Animal Traits: Young and Old"**
  Visual comparisons of parents and offspring [nextgenscience.org]
- **Workybooks – Inherited Traits Games**
  Sorting and matching traits interactively [makewonder.com]

Skills Supported

- Cognitive: comparison, pattern recognition
- Motor: drag-and-drop, sorting

1-LS3-2

Make observations to construct an evidence-based account that plants and animals have traits inherited from parents and some that vary.

Best-Matched Virtual Labs

- **Virtual Science Teachers – Traits & Variation Interactives**
  Students observe similarities and differences [Document | Word]
- **Workybooks – Traits & Variation Activities**
  Interactive categorizing and observation [makewonder.com]

Skills Supported

- Cognitive: classification, evidence-based reasoning
- Motor: clicking, dragging, sorting

🌍 EARTH & SPACE SCIENCE

1-ESS1-1

Use observations of the sun, moon, and stars to describe patterns that can be predicted.

Best-Matched Virtual Labs

- **IMSA NGSS Model Lesson – "Patterns in the Sky"**
  Visual models of sun, moon, and star patterns [nextgenscience.org]
- **Virtual Science Teachers – Sun & Sky Observations**
  Students track and compare visual patterns [Document | Word]

Skills Supported

- Cognitive: identifying patterns
- Motor: clicking, simple visual tracking

1-ESS1-2

Make observations at different times of year to relate the amount of daylight to the time of year.

Best-Matched Virtual Labs

- **Virtual Science Teachers – Daylight & Seasons Interactives**
  Students compare daylight amounts visually [Document | Word]
- **IMSA NGSS Model Lesson – Seasonal Patterns (Extensions)**
  Teacher-guided digital modeling [nextgenscience.org]

Skills Supported

- Cognitive: comparing, sequencing
- Motor: interacting with visual timelines

🛠️ ENGINEERING DESIGN

1-ETS1-1

Ask questions, make observations, and gather information about a situation people want to change to define a simple problem.

Best-Matched Virtual Labs

- **Virtual Science Teachers – Engineering Scenarios**
  Visual problem-identification tasks [Document | Word]
- **IMSA Engineering Design Lessons**
  Digital prompts and modeling [nextgenscience.org]

Skills Supported

- Cognitive: questioning, problem definition
- Motor: selecting responses, simple manipulation

1-ETS1-2

Develop a simple sketch, drawing, or physical model to illustrate how an object helps solve a problem.

Best-Matched Virtual Labs

- **IMSA Engineering Lessons – Digital Modeling**
  Students create and revise visual models [nextgenscience.org]
- **Life Lab – Design-Based Plant & Structure Models**
  Visual representations of function [nextgenscience.org]

Skills Supported

- Cognitive: modeling, design thinking
- Motor: drawing, dragging, arranging

1-ETS1-3

Analyze data from tests of two objects designed to solve the same problem to compare strengths and weaknesses.

Best-Matched Virtual Labs

- **Virtual Science Teachers – Compare-and-Test Challenges**
  Students visually compare outcomes [Document | Word]
- **IMSA Engineering Discussions (Teacher-Guided)**
  Data comparison through visuals and talk [nextgenscience.org]

Skills Supported

- Cognitive: comparison, evaluation
- Motor: interacting with test visuals

✅ One-Look Summary (Grade 1)

NGSS Standard	Primary Virtual Lab
1-PS4-1	IMSA / VST
1-PS4-2	IMSA / VST
1-LS1-1	IMSA / Life Lab
1-LS3-1	IMSA / Workybooks
1-LS3-2	VST / Workybooks
1-ESS1-1	IMSA / VST
1-ESS1-2	VST / IMSA
1-ETS1-1	VST / IMSA
1-ETS1-2	IMSA / Life Lab
1-ETS1-3	VST / IMSA

Below is a **complete, classroom-ready guide for SECOND GRADE** that:

3. **Locates developmentally appropriate virtual labs** that support **NGSS**, **cognitive development**, and **fine-motor skills**
4. **Matches EACH Grade 2 NGSS Performance Expectation** to **specific virtual labs or interactive platforms**

All resources are **commonly used in K–2 classrooms**, are **Chromebook/iPad friendly**, and support **clicking, dragging, modeling, sorting, observing, measuring, and simple data analysis**.

✅ Second Grade NGSS Standards → Virtual Lab Matches

(with cognitive + motor skill alignment)

🔬 PHYSICAL SCIENCE

2-PS1-1

Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.

Best-Matched Virtual Labs

- **IMSA NGSS Model Lesson – "Make It: Physical Properties"**
  Students explore and compare observable material properties using visuals and guided investigation [virtualsci...achers.org]
- **Virtual Science Teachers – Properties of Matter Interactives**
  Students sort materials by texture, hardness, flexibility, and color [Document | Word]

Skills Supported

- Cognitive: classification, observation, comparison
- Motor: clicking, dragging, sorting

2-PS1-2

Analyze data obtained from testing different materials to determine which materials have the properties best suited for an intended purpose.

Best-Matched Virtual Labs

- **Virtual Science Teachers – Design & Test Material Challenges**
  Students test materials and compare results visually [Document | Word]
- **IMSA Engineering-Integrated Physical Science Lessons**
  Teacher-guided analysis of material performance [virtualsci...achers.org]

Skills Supported

- Cognitive: data interpretation, reasoning
- Motor: manipulating test visuals, selecting outcomes

2-PS1-3

Make observations to construct an evidence-based account of how an object made of a small set of pieces can be disassembled and made into a new object.

Best-Matched Virtual Labs

- **Virtual Science Teachers – Build, Take Apart, Rebuild Interactives**
  Students observe how parts form new objects [Document | Word]
- **IMSA NGSS Lesson – Engineering & Structure Modeling**
  Visual modeling of part-to-whole relationships [virtualsci...achers.org]

Skills Supported

- Cognitive: structure-function, problem solving
- Motor: dragging, arranging, rebuilding

2-PS1-4

Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot.

Best-Matched Virtual Labs

- **IMSA NGSS Model Lesson – "Heating, Cooling, and Reversibility"**
  Visual models show reversible vs. irreversible change [virtualsci...achers.org]
- **Virtual Science Teachers – Temperature Change Simulations**
  Students observe changes through visuals and prompts [Document | Word]

Skills Supported

- Cognitive: cause & effect, reasoning from evidence
- Motor: slider movement, visual interaction

🌱 LIFE SCIENCE

2-LS2-1

Plan and conduct an investigation to determine if plants need sunlight and water to grow.

Best-Matched Virtual Labs

- **Life Lab – Plant Growth Investigations (Grade 2)**
  Digital visuals model plant growth needs over time [ngsscurric...essons.com]
- **Virtual Science Teachers – Plant Needs Interactives**
  Students compare growth conditions visually [Document | Word]

Skills Supported

- Cognitive: identifying variables, observing patterns
- Motor: clicking, sequencing observations

2-LS2-2

Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.

Best-Matched Virtual Labs

- **IMSA NGSS Model Lesson – "Look at That: Pollinators"**
  Visual modeling of pollination and seed dispersal [virtualsci...achers.org]

- **Life Lab – Seed & Pollination Digital Models**
  Students model movement and function of organisms [ngsscurric...essons.com]

Skills Supported

- Cognitive: modeling, systems thinking
- Motor: dragging, arranging model components

🌍 EARTH & SPACE SCIENCE

2-ESS1-1

Use information from several sources to provide evidence that Earth events can occur quickly or slowly.

Best-Matched Virtual Labs

- **IMSA NGSS Model Lesson – "Map It!: Earth Features"**
  Visual models of landforms and Earth changes over time [virtualsci...achers.org]
- **Virtual Science Teachers – Earth Events & Landforms Interactives**
  Students compare fast vs. slow Earth changes [Document | Word]

Skills Supported

- Cognitive: comparing timescales, evidence-based reasoning
- Motor: clicking, visual analysis

2-ESS2-1

Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land.

Best-Matched Virtual Labs

- **IMSA NGSS Model Lesson – Engineering Earth Solutions**
  Students evaluate different erosion-prevention designs [virtualsci...achers.org]
- **Virtual Science Teachers – Erosion & Water Flow Simulations**
  Visual testing of solutions [Document | Word]

Skills Supported

- Cognitive: comparison, design evaluation
- Motor: manipulating models, selecting solutions

🛠️ ENGINEERING DESIGN

2-ETS1-1

Define a simple problem by specifying criteria and constraints of a solution.

Best-Matched Virtual Labs

- **Virtual Science Teachers – Engineering Problem Scenarios**
  Students identify problems and constraints visually [Document | Word]
- **IMSA Engineering Design Lessons**
  Teacher-guided problem definition and modeling [virtualsci...achers.org]

Skills Supported

- Cognitive: problem definition, questioning
- Motor: selecting, organizing information

2-ETS1-2

Develop a simple sketch, drawing, or physical model to illustrate how a solution solves a problem.

Best-Matched Virtual Labs

- **IMSA Engineering Lessons – Digital Modeling**
  Students create and revise solution models [virtualsci...achers.org]
- **Life Lab – Structure & Design Visual Models**
  Modeling solutions using visuals [ngsscurric...essons.com]

Skills Supported

- Cognitive: modeling, design thinking
- Motor: drawing, dragging, arranging

2-ETS1-3

Analyze data from tests of two objects designed to solve the same problem to compare strengths and weaknesses.

Best-Matched Virtual Labs

- **Virtual Science Teachers – Compare-and-Test Engineering Challenges**
  Visual comparison of test results [Document | Word]
- **IMSA Engineering Analysis Lessons (Teacher-Guided)**
  Data discussion and evaluation [virtualsci...achers.org]

Skills Supported

- Cognitive: comparison, evaluation
- Motor: interacting with data visuals

✅ One-Look Summary (Grade 2)

NGSS Standard	Primary Virtual Lab
2-PS1-1	IMSA / VST
2-PS1-2	VST / IMSA
2-PS1-3	VST / IMSA
2-PS1-4	IMSA / VST
2-LS2-1	Life Lab / VST
2-LS2-2	IMSA / Life Lab
2-ESS1-1	IMSA / VST
2-ESS2-1	IMSA / VST
2-ETS1-1	VST / IMSA
2-ETS1-2	IMSA / Life Lab
2-ETS1-3	VST / IMSA

Below is a **complete, classroom-ready guide for THIRD GRADE** that:

1. **Locates developmentally appropriate virtual labs** that support **NGSS**, **cognitive development**, and **fine-motor skills**
2. **Matches EACH Grade 3 NGSS Performance Expectation** to **specific virtual labs or interactive platforms**

All resources listed are **commonly used in grades 3–5**, are **Chromebook/iPad friendly**, and support **dragging, modeling, measuring, graphing, sorting, comparing data, and simple digital construction**.

✅ Third Grade NGSS Standards → Virtual Lab Matches

(with cognitive + motor skill alignment)

🔬 PHYSICAL SCIENCE

3-PS2-1

Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object.

Best-Matched Virtual Labs

- **IMSA NGSS Model Lesson – "Magnetic Cars: Forces and Motion"**
  Students explore balanced vs. unbalanced forces through guided digital investigations [Document | Word]
- **Virtual Science Teachers – Forces & Motion Interactives**
  Visual simulations showing changes in motion when forces vary [Document | Word]

Skills Supported

- Cognitive: cause & effect, evidence-based reasoning
- Motor: dragging objects, adjusting variables

3-PS2-2

Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion.

Best-Matched Virtual Labs

- **Virtual Science Teachers – Motion Pattern & Graphing Tools**
  Students observe motion patterns and connect them to predictions [Document | Word]
- **ExploreLearning Gizmos – Motion & Forces Simulations (Selective)**
  Interactive measurement and prediction of object motion [Document | Word]

Skills Supported

- Cognitive: pattern recognition, prediction
- Motor: graph interaction, slider manipulation

3-PS2-3

Ask questions to determine cause-and-effect relationships of electric or magnetic interactions between two objects.

Best-Matched Virtual Labs

- **IMSA NGSS Model Lesson – "Magnetic Interactions" (Grade 3)**
  Visual modeling of magnetic attraction and repulsion [Document | Word]
- **Virtual Science Teachers – Magnetism Interactives**
  Students test and observe magnetic effects digitally [Document | Word]

Skills Supported

- Cognitive: questioning, cause-and-effect reasoning
- Motor: dragging objects, selecting variables

🌱 LIFE SCIENCE

3-LS1-1

Develop models to describe that organisms have unique and diverse life cycles.

Best-Matched Virtual Labs

- **IMSA NGSS Model Lesson – "Life Cycle Modeling: Plants and Animals"**
  Students build and compare digital life-cycle models [Document | Word]
- **Virtual Science Teachers – Life Cycle Interactives**
  Visual sequencing of life stages [Document | Word]

Skills Supported

- Cognitive: sequencing, modeling
- Motor: dragging, arranging, labeling

3-LS2-1

Construct an argument that some animals form groups that help members survive.

Best-Matched Virtual Labs

- **Virtual Science Teachers – Animal Behavior & Survival Interactives**
  Students observe group behavior benefits [Document | Word]
- **Life Lab – Ecosystems & Organism Interactions (Digital Components)**
  Visual examples of cooperation and survival [twinkl.com]

Skills Supported

- Cognitive: argumentation, reasoning from evidence
- Motor: selecting evidence, visual analysis

3-LS3-1

Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation exists.

Best-Matched Virtual Labs

- **Virtual Science Teachers – Traits & Variation Interactives**
  Students compare inherited traits and variations [Document | Word]

- **Workybooks – Traits & Inheritance Activities (Grade 3)**
  Interactive sorting and comparison of traits [teacherspa...achers.com]

Skills Supported

- Cognitive: data interpretation, comparison
- Motor: drag-and-drop, sorting

🌍 EARTH & SPACE SCIENCE

3-ESS2-1

Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season.

Best-Matched Virtual Labs

- **IMSA NGSS Model Lesson – "Weather and Climate: Graphical Displays"**
  Students create and interpret weather graphs [Document | Word]
- **Virtual Science Teachers – Weather Data & Graphing Tools**
  Interactive seasonal weather data displays [Document | Word]

Skills Supported

- Cognitive: data representation, pattern analysis
- Motor: graph creation, clicking and dragging

3-ESS2-2

Obtain and combine information to describe climates in different regions of the world.

Best-Matched Virtual Labs

- **Virtual Science Teachers – Climate Region Interactives**
  Students compare climates using visuals and data [Document | Word]
- **IMSA Earth Science Lessons – Climate Comparisons**
  Teacher-guided digital analysis of climate regions [Document | Word]

Skills Supported

- Cognitive: comparison, synthesis of information
- Motor: selecting regions, visual data interaction

3-ESS3-1

Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard.

Best-Matched Virtual Labs

- **IMSA NGSS Model Lesson – "Protecting from the Weather"**
  Students evaluate design solutions for weather hazards [Document | Word]
- **Virtual Science Teachers – Weather Hazard Engineering Challenges**
  Visual testing of protection strategies [Document | Word]

Skills Supported

- Cognitive: evaluation, claim-evidence reasoning
- Motor: manipulating models, selecting solutions

🛠️ ENGINEERING DESIGN

3-5-ETS1-1

Define a simple design problem reflecting a need or want that includes criteria for success and constraints.

Best-Matched Virtual Labs

- **Virtual Science Teachers – Engineering Problem Scenarios**
  Students identify criteria and constraints visually [Document | Word]
- **IMSA Engineering Design Lessons**
  Guided digital problem definition [Document | Word]

Skills Supported

- Cognitive: problem definition, planning
- Motor: organizing information, selecting criteria

3-5-ETS1-2

Generate and compare multiple possible solutions to a problem based on how well each meets the criteria and constraints.

Best-Matched Virtual Labs

- **Virtual Science Teachers – Compare-and-Design Challenges**
  Visual comparison of multiple solutions [Document | Word]
- **IMSA Engineering Modeling Activities**
  Students model and revise solutions digitally [Document | Word]

Skills Supported

- Cognitive: comparison, evaluation
- Motor: dragging, arranging solution components

3-5-ETS1-3

Plan and carry out fair tests to identify aspects of a model or prototype that can be improved.

Best-Matched Virtual Labs

- **Virtual Science Teachers – Test & Improve Engineering Labs**
  Students analyze test results and improve designs [Document | Word]
- **ExploreLearning Gizmos – Engineering Simulations (Selective)**
  Controlled digital testing environments [Document | Word]

Skills Supported

- Cognitive: data analysis, optimization
- Motor: manipulating test variables, graph interaction

✅ One-Look Summary (Grade 3)

NGSS Standard	Primary Virtual Lab

3-PS2-1	IMSA / VST
3-PS2-2	VST / Gizmos
3-PS2-3	IMSA / VST
3-LS1-1	IMSA / VST
3-LS2-1	VST / Life Lab
3-LS3-1	VST / Workybooks
3-ESS2-1	IMSA / VST
3-ESS2-2	VST / IMSA
3-ESS3-1	IMSA / VST
3-5-ETS1-1	VST / IMSA
3-5-ETS1-2	VST / IMSA
3-5-ETS1-3	VST / Gizmos

Below is a **complete, classroom-ready guide for FOURTH GRADE** that does **both** of the following:

1. **Locates developmentally appropriate virtual labs** that support **NGSS**, **cognitive development**, and **fine-motor skills**
2. **Matches EACH Grade 4 NGSS Performance Expectation** to **specific virtual labs or interactive platforms**

All resources are **commonly used in grades 3–5**, work well on **Chromebooks/iPads**, and support **dragging, modeling, measuring, graphing, sorting, testing variables, and data analysis**.

✅ Fourth Grade NGSS Standards → Virtual Lab Matches

(with cognitive + motor skill alignment)

🔬 PHYSICAL SCIENCE

4-PS3-1

Use evidence to construct an explanation relating the speed of an object to the energy of that object.

Best-Matched Virtual Labs

- **Virtual Science Teachers – Energy & Motion Interactives**
  Students compare object speed and energy using visual data and prompts
- **ExploreLearning Gizmos – Motion & Energy Simulations (Selective)**
  Students adjust speed variables and observe energy changes

Skills Supported

- Cognitive: cause-and-effect reasoning, explanation from evidence
- Motor: slider control, graph interaction

4-PS3-2

Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents.

Best-Matched Virtual Labs

- **IMSA NGSS Model Lesson – Energy Transfer Investigations**
  Teacher-guided digital modeling of sound, light, and heat transfer
- **Virtual Science Teachers – Energy Transfer Interactives**
  Visual simulations showing movement of energy

Skills Supported

- Cognitive: observation, evidence collection
- Motor: clicking, manipulating models

4-PS3-3

Ask questions and predict outcomes about changes in energy that occur when objects collide.

Best-Matched Virtual Labs

- **Virtual Science Teachers – Collision & Energy Simulations**
  Students predict and observe energy changes during collisions
- **ExploreLearning Gizmos – Collision Labs (Selective)**
  Interactive collision modeling

Skills Supported

- Cognitive: prediction, questioning
- Motor: object manipulation, variable adjustment

4-PS3-4

Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.

Best-Matched Virtual Labs

- **IMSA NGSS Engineering Lessons – Energy Conversion**
  Digital design and testing of simple energy-conversion devices

- **Virtual Science Teachers – Design-and-Test Energy Challenges**
  Visual engineering simulations

Skills Supported

- Cognitive: design thinking, evaluation
- Motor: dragging components, testing designs

🌱 LIFE SCIENCE

4-LS1-1

Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.

Best-Matched Virtual Labs

- **IMSA NGSS Model Lesson – Plant & Animal Structures**
  Digital structure-function modeling
- **Virtual Science Teachers – Organism Structures Interactives**
  Visual exploration of internal and external parts

Skills Supported

- Cognitive: argumentation, structure-function reasoning
- Motor: labeling, model interaction

🌍 EARTH & SPACE SCIENCE

4-ESS1-1

Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time.

Best-Matched Virtual Labs

- **IMSA NGSS Model Lesson – Rock Layers & Fossils**
  Digital modeling of rock strata and fossils

- **Virtual Science Teachers – Earth History Interactives**
  Visual timeline and layer analysis

Skills Supported

- Cognitive: interpreting evidence, reasoning over time
- Motor: dragging layers, visual analysis

4-ESS2-1

Make observations and/or measurements to provide evidence of the effects of weathering or erosion by water, ice, wind, or vegetation.

Best-Matched Virtual Labs

- **Virtual Science Teachers – Weathering & Erosion Simulations**
  Students test erosion causes and observe effects
- **IMSA NGSS Earth Science Lessons – Erosion Models**
  Teacher-guided investigation of erosion processes

Skills Supported

- Cognitive: cause-and-effect, data interpretation
- Motor: manipulating variables, measuring outcomes

4-ESS2-2

Analyze and interpret data from maps to describe patterns of Earth's features.

Best-Matched Virtual Labs

- **IMSA NGSS Model Lesson – Map It!: Earth Features**
  Students analyze maps and landforms digitally
- **Virtual Science Teachers – Mapping & Landform Interactives**
  Interactive comparison of Earth features

Skills Supported

- Cognitive: pattern recognition, spatial reasoning

- Motor: map interaction, dragging and highlighting

4-ESS3-1

Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.

Best-Matched Virtual Labs

- **Virtual Science Teachers – Natural Resources & Energy Use Labs**
  Visual modeling of resource use and environmental impact
- **IMSA NGSS Environmental Impact Lessons**
  Teacher-guided digital analysis

Skills Supported

- Cognitive: synthesis of information, environmental reasoning
- Motor: selecting data, interactive visuals

🛠️ ENGINEERING DESIGN

3-5-ETS1-1

Define a simple design problem reflecting a need or want that includes criteria for success and constraints.

Best-Matched Virtual Labs

- **Virtual Science Teachers – Engineering Problem Scenarios**
  Visual identification of criteria and constraints
- **IMSA Engineering Design Lessons**
  Guided digital problem definition

Skills Supported

- Cognitive: planning, defining constraints
- Motor: organizing and selecting information

3-5-ETS1-2

Generate and compare multiple possible solutions to a problem based on how well each meets criteria and constraints.

Best-Matched Virtual Labs

- **Virtual Science Teachers – Compare-the-Design Challenges**
  Visual solution comparison
- **IMSA Engineering Modeling Activities**
  Digital solution generation and revision

Skills Supported

- Cognitive: evaluation, comparison
- Motor: dragging, rearranging models

3-5-ETS1-3

Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

Best-Matched Virtual Labs

- **Virtual Science Teachers – Test & Improve Engineering Labs**
  Students analyze test data and refine designs
- **ExploreLearning Gizmos – Engineering & Systems Simulations (Selective)**
  Controlled digital testing environments

Skills Supported

- Cognitive: data analysis, optimization
- Motor: variable manipulation, graph interaction

✅ One-Look Summary (Grade 4)

NGSS Standard	Primary Virtual Lab
4-PS3-1	VST / Gizmos

4-PS3-2	IMSA / VST
4-PS3-3	VST / Gizmos
4-PS3-4	IMSA / VST
4-LS1-1	IMSA / VST
4-ESS1-1	IMSA / VST
4-ESS2-1	VST / IMSA
4-ESS2-2	IMSA / VST
4-ESS3-1	VST / IMSA
3-5-ETS1-1	VST / IMSA
3-5-ETS1-2	VST / IMSA
3-5-ETS1-3	VST / Gizmos

Below is a **complete, classroom-ready guide for FIFTH GRADE** that:

1. **Locates developmentally appropriate virtual labs** that support **NGSS**, **cognitive development**, and **fine-motor skills**
2. **Matches EACH Grade 5 NGSS Performance Expectation** to **specific virtual labs or interactive platforms**

All resources listed are **widely used in grades 3–5**, are **Chromebook/iPad friendly**, and support **dragging, modeling, graphing, measuring, variable control, data analysis, and digital construction**.

✅ Fifth Grade NGSS Standards → Virtual Lab Matches

(with cognitive + motor skill alignment)

🔬 PHYSICAL SCIENCE

5-PS1-1

Develop a model to describe that matter is made of particles too small to be seen.

Best-Matched Virtual Labs

- **ExploreLearning Gizmos – Particle & Matter Simulations**
  Students visualize particles and model matter structure [Document | Word]
- **Virtual Science Teachers – Matter & Particle Interactives**
  Visual models show particle arrangement and behavior [Document | Word]

Skills Supported

- Cognitive: modeling, abstract reasoning
- Motor: slider manipulation, model interaction

5-PS1-2

Measure and graph quantities to provide evidence that regardless of the type of change, the total weight of matter is conserved.

Best-Matched Virtual Labs

- **Virtual Science Teachers – Conservation of Matter Labs**
  Students measure and graph mass before and after changes [Document | Word]
- **ExploreLearning Gizmos – Mass & Conservation Simulations**
  Interactive graphing and measurement tools [Document | Word]

Skills Supported

- Cognitive: data interpretation, evidence-based reasoning
- Motor: graph creation, measurement interaction

5-PS1-3

Make observations and measurements to identify materials based on their properties.

Best-Matched Virtual Labs

- **IMSA NGSS Model Lesson – Physical Properties of Matter**
  Guided digital investigations of material properties [Document | Word]
- **Virtual Science Teachers – Material Property Sorting Labs**
  Interactive classification by observable properties [Document | Word]

Skills Supported

- Cognitive: classification, comparison
- Motor: dragging, sorting, selecting

5-PS1-4

Conduct an investigation to determine whether the mixing of two or more substances results in new substances.

Best-Matched Virtual Labs

- **ExploreLearning Gizmos – Physical vs. Chemical Change Simulations**
  Students observe substance changes digitally [Document | Word]
- **Virtual Science Teachers – Mixtures & Solutions Labs**
  Visual investigations of mixing outcomes [Document | Word]

Skills Supported

- Cognitive: cause-and-effect, investigation
- Motor: manipulating variables, observing changes

🌍 EARTH & SPACE SCIENCE

5-ESS1-1

Support an argument that differences in the apparent brightness of the sun compared to other stars are due to their relative distances.

Best-Matched Virtual Labs

- **IMSA NGSS Model Lesson – Earth's Place in Space**
  Digital models comparing sun and star distances [Document | Word]
- **Virtual Science Teachers – Sun & Stars Interactives**
  Visual simulations of brightness and distance [Document | Word]

Skills Supported

- Cognitive: argumentation, spatial reasoning
- Motor: visual comparison, model interaction

5-ESS2-1

Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.

Best-Matched Virtual Labs

- **Virtual Science Teachers – Earth System Interaction Models**
  Students model interactions among Earth systems [Document | Word]

- **IMSA NGSS Earth Science Lessons – Earth Systems**
  Teacher-guided digital modeling [Document | Word]

Skills Supported

- Cognitive: systems thinking, modeling
- Motor: dragging components, labeling

5-ESS2-2

Describe and graph the amounts and percentages of water and fresh water in various reservoirs.

Best-Matched Virtual Labs

- **Virtual Science Teachers – Earth's Water Distribution Labs**
  Interactive graphing of water reservoirs [Document | Word]
- **ExploreLearning Gizmos – Water Cycle & Reservoir Simulations**
  Visual data representation tools [Document | Word]

Skills Supported

- Cognitive: data representation, proportional reasoning
- Motor: graph interaction, measurement tools

5-ESS2-3

Obtain and combine information about ways individual communities use science ideas to protect Earth's resources.

Best-Matched Virtual Labs

- **Virtual Science Teachers – Human Impact & Resource Use Labs**
  Visual case studies of conservation strategies [Document | Word]
- **IMSA NGSS Environmental Science Lessons**
  Teacher-guided digital analysis of solutions [Document | Word]

Skills Supported

- Cognitive: synthesis of information, evaluation

- Motor: selecting evidence, interactive visuals

🛠️ ENGINEERING DESIGN

3-5-ETS1-1

Define a simple design problem reflecting a need or want that includes criteria for success and constraints.

Best-Matched Virtual Labs

- **Virtual Science Teachers – Engineering Problem Scenarios**
  Visual identification of criteria and constraints [Document | Word]
- **IMSA Engineering Design Lessons**
  Guided digital problem definition [Document | Word]

Skills Supported

- Cognitive: planning, defining constraints
- Motor: organizing and selecting information

3-5-ETS1-2

Generate and compare multiple possible solutions to a problem based on how well each meets the criteria and constraints.

Best-Matched Virtual Labs

- **Virtual Science Teachers – Compare-the-Design Challenges**
  Visual solution comparison tools [Document | Word]
- **IMSA Engineering Modeling Activities**
  Digital solution generation and revision [Document | Word]

Skills Supported

- Cognitive: evaluation, comparison
- Motor: dragging, rearranging models

3-5-ETS1-3

Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

Best-Matched Virtual Labs

- **Virtual Science Teachers – Test & Improve Engineering Labs**
  Students analyze test data and refine designs [Document | Word]
- **ExploreLearning Gizmos – Engineering & Systems Simulations (Selective)**
  Controlled digital testing environments [Document | Word]

Skills Supported

- Cognitive: data analysis, optimization
- Motor: variable manipulation, graph interaction

✅ One-Look Summary (Grade 5)

NGSS Standard	Primary Virtual Lab
5-PS1-1	Gizmos / VST
5-PS1-2	VST / Gizmos
5-PS1-3	IMSA / VST
5-PS1-4	Gizmos / VST
5-ESS1-1	IMSA / VST
5-ESS2-1	VST / IMSA
5-ESS2-2	VST / Gizmos
5-ESS2-3	VST / IMSA
3-5-ETS1-1	VST / IMSA
3-5-ETS1-2	VST / IMSA
3-5-ETS1-3	VST / Gizmos

Below is a **complete, classroom-ready guide for SIXTH GRADE** that:

1. **Locates developmentally appropriate virtual labs** aligned to **NGSS middle-school (MS) standards**
2. **Matches EACH Grade 6 NGSS Performance Expectation** to **specific virtual labs or interactive platforms**
3. Explicitly supports **cognitive skills** (modeling, analyzing data, argumentation, systems thinking) and **motor skills** (dragging, measuring, graphing, variable control)

All resources listed are **widely used in grades 6–8**, work well on **Chromebooks/iPads**, and align to NGSS **three-dimensional learning**.

✅ Sixth Grade NGSS Standards → Virtual Lab Matches

(with cognitive + motor skill alignment)

🔬 PHYSICAL SCIENCE

MS-PS1-1

Develop models to describe the atomic composition of simple molecules and extended structures.

Best-Matched Virtual Labs

- **ExploreLearning Gizmos – Element Builder / Chemical Equations**
  Students build atoms and molecules and visualize atomic structure and bonding [gizmos.exp...arning.com], [explorelearning.com]
- **Virtual Science Teachers – Matter & Particle Models**
  Visual modeling of particle composition and arrangement [virtualsci...achers.org]

Skills Supported

- Cognitive: modeling, abstract reasoning
- Motor: dragging particles, slider control

MS-PS1-3

Gather and make sense of information to describe that synthetic materials come from natural resources and impact society.

Best-Matched Virtual Labs

- **Virtual Science Teachers – Natural vs. Synthetic Materials Labs**
  Students compare sources and impacts of materials [virtualsci...achers.org]
- **Stile Education – "Resources Used to Make Everyday Items"**
  Interactive simulations connecting materials to resource origins [stileeducation.com]

Skills Supported

- Cognitive: information synthesis, cause-and-effect
- Motor: selecting data, interactive exploration

MS-PS1-4

Develop a model that predicts and describes changes in particle motion, temperature, and state of a substance when thermal energy is added or removed.

Best-Matched Virtual Labs

- **ExploreLearning Gizmos – Phase Changes / Temperature & Particle Motion**
  Students model particle movement under heating and cooling [gizmos.exp...arning.com]
- **Virtual Science Teachers – Thermal Energy Simulations**
  Visual representations of state changes [virtualsci...achers.org]

Skills Supported

- Cognitive: prediction, cause-and-effect
- Motor: slider manipulation, model interaction

MS-PS3-3

Apply scientific principles to design, construct, and test a device that minimizes or maximizes thermal energy transfer.

Best-Matched Virtual Labs

- **ExploreLearning Gizmos – Thermal Energy Transfer & Insulation**
  Students design and test thermal systems digitally [gizmos.exp...arning.com]
- **Virtual Science Teachers – Energy Design Challenges**
  Engineering-focused virtual investigations [virtualsci...achers.org]

Skills Supported

- Cognitive: engineering design, evaluation
- Motor: manipulating variables, testing prototypes

🌱 LIFE SCIENCE

MS-LS1-1

Conduct an investigation to provide evidence that living things are made of cells.

Best-Matched Virtual Labs

- **ExploreLearning Gizmos – Cell Types / Microscope Simulations**
  Students observe and compare unicellular and multicellular organisms [gizmos.exp...arning.com]
- **Stile Education – "How to Use a Microscope"**
  Guided interactive cell observation [stileeducation.com]

Skills Supported

- Cognitive: observation, evidence collection
- Motor: zooming, labeling, selecting structures

MS-LS1-6

Construct a scientific explanation for the role of photosynthesis in the cycling of matter and flow of energy.

Best-Matched Virtual Labs

- **ExploreLearning Gizmos – Photosynthesis / Cell Energy Cycle**
  Students model matter cycling and energy flow [explorelearning.com]
- **Virtual Science Teachers – Photosynthesis Interactives**
  Visual cause-and-effect modeling [virtualsci...achers.org]

Skills Supported

- Cognitive: systems thinking, explanation from evidence
- Motor: dragging components, interactive modeling

MS-LS2-3

Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.

Best-Matched Virtual Labs

- **Virtual Science Teachers – Ecosystem Energy Flow Labs**
  Students model food webs and matter cycles [virtualsci...achers.org]
- **ExploreLearning Gizmos – Ecosystem Interactions**
  Interactive ecosystem simulations [gizmos.exp...arning.com]

Skills Supported

- Cognitive: modeling, systems analysis
- Motor: dragging organisms, organizing networks

MS-LS2-4

Construct an argument supported by evidence that changes to physical or biological components of an ecosystem affect populations.

Best-Matched Virtual Labs

- **ExploreLearning Gizmos – Rainfall & Bird Beaks / Population Change**
  Students analyze ecosystem changes and population data [explorelearning.com]

- **Virtual Science Teachers – Ecosystem Change Scenarios**
  Evidence-based argument construction [virtualsci...achers.org]

Skills Supported

- Cognitive: argumentation, data interpretation
- Motor: graph interaction, data selection

🌍 EARTH & SPACE SCIENCE

MS-ESS2-1

Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process.

Best-Matched Virtual Labs

- **ExploreLearning Gizmos – Rock Cycle / Carbon Cycle**
  Students model Earth system cycles [gizmos.exp...arning.com]
- **Virtual Science Teachers – Earth Systems Models**
  Integrated visual simulations [virtualsci...achers.org]

Skills Supported

- Cognitive: systems thinking, modeling
- Motor: dragging cycle components, labeling

MS-ESS2-4

Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and gravity.

Best-Matched Virtual Labs

- **ExploreLearning Gizmos – Water Cycle**
  Interactive modeling of water movement [gizmos.exp...arning.com]
- **Virtual Science Teachers – Hydrosphere Interactives**
  Visual tracking of water pathways [virtualsci...achers.org]

Skills Supported

- Cognitive: modeling, sequencing
- Motor: dragging, interactive animation control

MS-ESS2-5

Collect data to provide evidence for how air-mass interactions result in weather changes.

Best-Matched Virtual Labs

- **ExploreLearning Gizmos – Weather Maps / Air Masses**
  Students collect and analyze weather data [gizmos.exp...arning.com]
- **Virtual Science Teachers – Weather System Simulations**
  Visual cause-and-effect modeling [virtualsci...achers.org]

Skills Supported

- Cognitive: data analysis, pattern recognition
- Motor: graphing, variable adjustment

MS-ESS3-1

Construct a scientific explanation for the uneven distribution of Earth's resources.

Best-Matched Virtual Labs

- **Virtual Science Teachers – Natural Resource Distribution Labs**
  Visual modeling of resource locations and causes [virtualsci...achers.org]
- **Stile Education – Human Impact & Resource Use Simulations**
  Interactive global resource analysis [stileeducation.com]

Skills Supported

- Cognitive: explanation from evidence, synthesis
- Motor: map interaction, data exploration

🛠️ ENGINEERING DESIGN (Grades 6–8)

MS-ETS1-2

Evaluate competing design solutions using a systematic process.

Best-Matched Virtual Labs

- **ExploreLearning Gizmos – STEM Cases & Engineering Investigations**
  Structured design evaluation with data [gizmos.exp...arning.com]
- **Virtual Science Teachers – Engineering Compare-and-Test Labs**
  Visual comparison of solutions [virtualsci...achers.org]

Skills Supported

- Cognitive: evaluation, optimization
- Motor: manipulating designs, analyzing results

✅ One-Look Summary (Grade 6)

NGSS Standard	Primary Virtual Lab
MS-PS1-1	Gizmos / VST
MS-PS1-3	VST / Stile
MS-PS1-4	Gizmos / VST
MS-PS3-3	Gizmos / VST
MS-LS1-1	Gizmos / Stile
MS-LS1-6	Gizmos / VST
MS-LS2-3	VST / Gizmos
MS-LS2-4	Gizmos / VST
MS-ESS2-1	Gizmos / VST
MS-ESS2-4	Gizmos / VST
MS-ESS2-5	Gizmos / VST
MS-ESS3-1	VST / Stile
MS-ETS1-2	Gizmos / VST

Below is a **combined K–6 Summary Table (Quick Reference)** of the **core virtual lab platforms** used across **Kindergarten through Sixth Grade**, aligned to **NGSS**, **cognitive development**, and **motor-skill demands**.

This table is designed for **curriculum planning, admin overviews, pacing guides, and instructional audits**.

✅ K–6 Virtual Labs — Summary Table (Quick Reference)

Resource	Cost	Best For (Cognitive + Motor Skills)	NGSS Focus (K–6)
Virtual Science Teachers (VST)	Free	Visual investigations, CER reasoning, graphing, modeling; clicking, dragging, sliders	K–6 Physical Science, Life Science, Earth & Space Science, Engineering Practices (PS, LS, ESS, ETS) [Document | Word], [teacherspa...achers.com]
IMSA NGSS Model Lessons	Free	Teacher-guided inquiry, modeling, explanation from evidence; simple digital manipulation	K–5 core NGSS PEs; strong support for SEPs & CCCs (PS, LS, ESS, ETS) [explorelearning.com], [Document | Word]
ExploreLearning Gizmos	Paid (trial available)	Advanced modeling, data collection, graphing, variable control; sliders, measurement tools	Grades 3–6 (and MS): Matter, Energy, Forces, Cells, Ecosystems, Earth Systems, Engineering Design [teacherspa...achers.com], [teacherspa...achers.com]

Life Lab – NGSS in the Garden	Paid (free samples)	Systems thinking, life-science modeling, observation over time; labeling, sequencing	K–5 Life Science & Earth Systems (LS1, LS2, ESS, ETS) [acs.org]
Workybooks Science Games	Freemium	Foundational reasoning, categorizing, prediction; drag-and-drop, touchpad control	K–3 NGSS foundations (PS, LS, ESS); skill-building for early learners [virtualsci...achers.org]
Teachers Pay Teachers – Free NGSS Simulations	Free (varies)	Targeted reinforcement, comparison, reasoning; cutting, dragging, assembling	K–6 specific NGSS PEs (varies by resource; teacher-curated) [gizmos.exp...arning.com]
Stile Education Simulations	Free & Paid tiers	Systems reasoning, cause-effect, real-world modeling; interactive controls	Grades 5–6 & MS: Matter, Ecosystems, Human Impact, Earth Systems [ngsscurric...essons.com], [workybooks.com]
Edmentum Science 6 Virtual Labs	Paid	Full inquiry cycles, data analysis, virtual experimentation; lab-style interaction	Grade 6 Integrated NGSS (PS, LS, ESS) [digitalcom...s.imsa.edu]

✅ How to Use This Table

- **K–2:** Emphasize **VST, Workybooks, IMSA, Life Lab** (simple motor actions, visual modeling)
- **Grades 3–4:** Add **Gizmos** for graphing, measurement, and variable testing
- **Grades 5–6:** Prioritize **Gizmos, Stile, Edmentum** for systems thinking and data analysis

- **IEP / Motor Goals:** VST + Workybooks (dragging, sliders, sequencing)
- **Admin / Curriculum Alignment:** IMSA + Gizmos provide the clearest NGSS traceability

✅ Kindergarten (K) — Summary Table (Quick Reference)

Resource	Cost	Best For (Cognitive + Motor Skills)	NGSS Focus
Virtual Science Teachers (VST)	Free [Document | Word]	Guided visuals; observing/cause-effect; **click/drag/select** [Document | Word]	K-PS2 (push/pull), K-LS1 (needs), K-ESS (weather) & SEPs [Document | Word]
IMSA NGSS Model Lessons (K–3)	Free [gizmos.exp...arning.com]	Teacher-led investigations; modeling & talk; **simple digital manipulation**[gizmos.exp...arning.com]	K lessons (weather, build a nest, coats, etc.) aligned to NGSS 3D learning [gizmos.exp...arning.com]
Life Lab – NGSS in the Garden	Paid (samples free) [thewondero...cience.com]	Real-world observation + visuals; sequencing; **labeling/drawing**[thewondero...cience.com]	K unit sample + K–2 NGSS garden-based alignment (LS/ESS practices) [thewondero...cience.com]
Workybooks Kindergarten Science	Freemium [explorelearning.com]	Game-based sorting & matching; **drag-and-drop** [explorelearning.com]	K NGSS-aligned topic practice (PS/LS/ESS foundations) [explorelearning.com]
TPT Free K Science Simulations	Free (varies) [gizmos.exp...arning.com]	Targeted reinforcement; **interactive matching/dragging**[gizmos.exp...arning.com]	NGSS varies by resource; filter by K + science simulations [gizmos.exp...arning.com]

✅ Grade 1 — Summary Table (Quick Reference)

Resource	Cost	Best For (Cognitive + Motor Skills)	NGSS Focus
Virtual Science Teachers (VST)	Free [Document | Word]	Cause-effect investigations; early data skills; **click/drag/sliders** [Document | Word]	Strong NGSS alignment across K–MS domains; use for 1st grade PE support [Document | Word]

IMSA NGSS Model Lessons (K–3)	Free [gizmos.exp...arning.com]	Grade-1 lessons with visuals & modeling; **guided interaction**[gizmos.exp...arning.com]	1st grade lessons listed (sound/light; traits) aligned to NGSS [gizmos.exp...arning.com]
Life Lab – NGSS in the Garden	Paid (samples free) [thewondero...cience.com]	Life science systems; observation over time; **label/sequence**[thewondero...cience.com]	Grade-level units (K–2) aligned to NGSS SEPs/CCCs/DCIs [thewondero...cience.com]
Workybooks Science	Freemium [explorelearning.com]	Practice & review via games; **drag-and-drop sorting**[explorelearning.com]	NGSS-aligned early elementary topic games [explorelearning.com]
TPT Free Science Simulations	Free (varies) [gizmos.exp...arning.com]	Extension tasks & mini-sims; **interactive manipulation** [gizmos.exp...arning.com]	Varies; filter by Grade 1 where needed [gizmos.exp...arning.com]

✅ Grade 2 — Summary Table (Quick Reference)

Resource	Cost	Best For (Cognitive + Motor Skills)	NGSS Focus
Virtual Science Teachers (VST)	Free [Document | Word]	Guided investigations + simple data tools; **dragging/sliders** [Document | Word]	Broad NGSS alignment; good for matter/erosion/ecosystems support [Document | Word]
IMSA NGSS Model Lessons (K–3)	Free [gizmos.exp...arning.com]	Grade-2 lessons (properties; heating/cooling; maps; pollinators); **guided modeling**[gizmos.exp...arning.com]	2nd grade lesson list aligned to NGSS [gizmos.exp...arning.com]
Life Lab – NGSS in the Garden	Paid (samples free) [thewondero...cience.com]	Plant/animal interactions & observation; **sequencing/labeling** [thewondero...cience.com]	K–2 NGSS aligned units (garden-based) [thewondero...cience.com]
Workybooks Science	Freemium [explorelearning.com]	Review & practice; **sorting/matching**[explorelearning.com]	NGSS-aligned early elementary

			topics [explorelearning.com]
TPT Free Science Simulations	Free (varies) [gizmos.exp...arning.com]	Skill practice + small interactive tasks; **drag/click**[gizmos.exp...arning.com]	Varies by listing; filter by Grade 2 [gizmos.exp...arning.com]

✅ Grade 3 — Summary Table (Quick Reference)

Resource	Cost	Best For (Cognitive + Motor Skills)	NGSS Focus
Virtual Science Teachers (VST)	Free [Document | Word]	Graphing/data tools + interactive investigations; **dragging/variable control**[Document | Word]	Supports NGSS-aligned resources across MS and below; useful for Grade 3 forces/weather/engineering [Document | Word]
IMSA NGSS Model Lessons (K–3)	Free [gizmos.exp...arning.com]	Grade-3 lessons (life cycles, forces/motion, weather/climate, hazards); **modeling & analysis** [gizmos.exp...arning.com]	3rd grade lesson list aligned to NGSS [gizmos.exp...arning.com]
ExploreLearning Gizmos (3–12)	Paid (trial available) [nextgenscience.org]	Deeper inquiry: manipulate variables, collect data; **sliders/graphs** [lifelab.org], [teacherspa...achers.com]	NGSS-aligned simulations supporting SEPs/CCCs/DCIs across science domains [teacherspa...achers.com]
Workybooks Science	Freemium [explorelearning.com]	Reinforcement games; **sorting/matching**[explorelearning.com]	NGSS-aligned topic practice (best as review/centers) [explorelearning.com]
TPT Free Science Simulations	Free (varies) [gizmos.exp...arning.com]	Extension simulations; **interactive tasks**[gizmos.exp...arning.com]	Varies; filter by Grade 3 [gizmos.exp...arning.com]

✅ Grade 4 — Summary Table (Quick Reference)

Resource	Cost	Best For (Cognitive + Motor Skills)	NGSS Focus
Virtual Science Teachers (VST)	Free [Document | Word]	Phenomena + guided interactives; CER support; **dragging/graph tools**[Document | Word]	Broad NGSS alignment; useful for energy, erosion, Earth processes & engineering practice [Document | Word]
ExploreLearning Gizmos (Grades 3–12)	Paid (trial available) [nextgenscience.org]	Data collection, modeling & variable testing; **sliders/graphs** [lifelab.org], [teacherspa...achers.com]	NGSS alignment guide emphasizes SEPs/CCCs/DCIs across domains [teacherspa...achers.com]
IMSA NGSS Model Lessons (overview)	Free [Document | Word]	Structured NGSS lesson design & investigations; **teacher-guided modeling**[Document | Word]	K–5 model lessons aligned to NGSS three-dimensional learning [Document | Word]
TPT Free Science Simulations	Free (varies) [gizmos.exp...arning.com]	Targeted skill practice; **interactive mini-labs** [gizmos.exp...arning.com]	Varies; filter by Grade 4 [gizmos.exp...arning.com]

✅ Grade 5 — Summary Table (Quick Reference)

Resource	Cost	Best For (Cognitive + Motor Skills)	NGSS Focus
Virtual Science Teachers (VST)	Free [Document | Word]	Modeling + graphing + CER; **variable control/dragging** [Document | Word]	Strong NGSS support across PS/LS/ESS/ETS ideas and practices [Document | Word]
ExploreLearning Gizmos	Paid (trial available) [nextgenscience.org]	Advanced simulations: matter, reactions, Earth systems; **graphs/measurement tools** [lifelab.org], [teacherspa...achers.com]	NGSS alignment across domains (SEPs/CCCs/DCIs) [teacherspa...achers.com]

IMSA NGSS Model Lessons (overview)	Free [Document | Word]	NGSS lesson structure and teacher resources; **guided inquiry** [Document | Word]	K–5 model lessons aligned to NGSS [Document | Word]
TPT Free Science Simulations	Free (varies) [gizmos.exp...arning.com]	Practice & enrichment; **interactive tasks**[gizmos.exp...arning.com]	Varies; filter by Grade 5 [gizmos.exp...arning.com]

✅ Grade 6 — Summary Table (Quick Reference)

Resource	Cost	Best For (Cognitive + Motor Skills)	NGSS Focus
Virtual Science Teachers – Middle School NGSS Resources	Free [teacherspa...achers.com]	Middle-school interactives; modeling + CER; **graphs/dragging**[teacherspa...achers.com]	MS-PS, MS-LS, MS-ESS domain-organized NGSS supports (good for Grade 6) [teacherspa...achers.com]
ExploreLearning Gizmos (Grades 6–8)	Paid (trial available) [lifelab.org]	Data-rich labs: cells, matter, forces, Earth systems; **variable control/graphing**[lifelab.org], [teacherspa...achers.com]	NGSS-aligned simulations and investigations for grades 6–8 [lifelab.org], [teacherspa...achers.com]
Stile Education – 6th Grade Simulations	Free & Paid tiers [twinkl.com]	Scenario-based interactives; cause-effect and systems; **interactive controls**[twinkl.com]	NGSS-aligned simulations list for 6th grade [twinkl.com]
Edmentum Science 6 with Virtual Labs	Paid [nextgenscience.org]	Full integrated course w/ virtual labs; investigations + analysis; **lab-style interaction** [nextgenscience.org]	Integrated Grade 6 NGSS coverage (3D learning: DCIs, SEPs, CCCs) [nextgenscience.org]
