Green Ninja

Program and Adoption Guide

Green Ninja Integrated Middle School

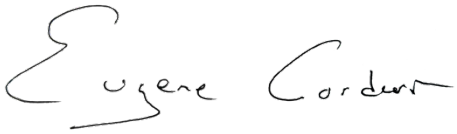
Welcome to Green Ninja

Thanks for considering Green Ninja for your curriculum needs. We've spent a lot of time thinking about how to engage students in the science classroom, and I think we've created something pretty special here.

In our curriculum, students get the opportunity to use science and engineering to solve real-world environmental problems that they care about. There are no textbooks here at Green Ninja, but rather a sequence of activities that use a variety of ways to engage students, including hands-on activities, design challenges, and opportunities for students to communicate their work in meaningful ways. The result is that students develop a stronger interest in science, a deeper connection to the environment, and improved confidence in their own abilities to create meaningful change. These are important steps towards helping students see themselves as leaders in their own home and community.

We've enjoyed creating these materials, and I'm especially looking forward to working with Districts and Schools to help make their Science Programs successful. Please have a look at the materials we have here, and then jump online to see what the teacher experience looks and feels like.

I believe we have a unique product that can change students lives, and I'm happy to answer any questions that you may have.



Thanks,
Eugene Cordero
Founder & Director

A Green Ninja Introduction

About Our Curriculum

Green Ninja originated out of academic research at San José State University that focused on student engagement and student motivation. Each unit of instruction starts with a unit challenge that focuses around a local or relevant environmental issue. Students then embark on a journey of study of various science and engineering topics that are relevant to the unit challenge. At the end of the unit, students have a culminating project that allows them to apply their learning towards solving the unit challenge. By giving students the opportunity to solve real-world problems they care about, this framework helps make science learning meaningful and rewarding for students.

Design Principles

Recatalyzing the Fun in Science

We combine humor, hands-on activities, and student creativity to make science relevant, personal, and fun every single day.

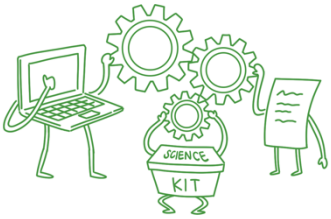
Uncovering the Magic of Scientific Storytelling

Storytelling is a powerful method of communication and is used throughout the curriculum. We help students develop this skill, so they can find their own voice and improve their confidence as leaders in their community.

Cultivating Environmental Roots

We use real-world environmental issues as a framework for learning. Each unit asks students to demonstrate their understanding by designing a solution to a real-world problem.

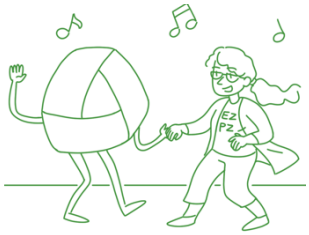
Gearing Up for Contemporary Needs



We use the right balance of technology and hands-on materials to effectively shift from the traditional textbook experience towards a dynamic student-centered experience.

Dancing the NGSS Two-Step with Teachers

The NGSS standards represents a significant shift in instruction. Our materials offer teachers a step-by-step playbook to deliver a true three-dimensional learning experience.



Approved for NGSS classrooms

Green Ninja was reviewed and approved by the California Department of Education. The review ensures the the program meets rigorous NGSS standards.

Teaching with Green Ninja

At Green Ninja, our goal is to provide students with opportunities to use science and engineering to solve real-world environmental problems that they care about. There are no student textbooks here at Green Ninja, but rather a sequence of activities that use a variety of ways to engage students, including hands-on activities, design challenges, and opportunities for students to communicate their work in meaningful ways. The result is that students develop a stronger interest in science, a deeper connection to the environment, and improved confidence in their own abilities to create meaningful change. These are important steps towards helping students see themselves as leaders in their own home and community.

A number of design elements have been created to help make Green Ninja curriculum engaging and rewarding. We outline below key components that are unique to each Green Ninja unit and that help support teachers in creating a stimulating learning environment.

Unit Challenge

The unit challenge provides a context to tie the entire unit together. On the first day of the unit, students are given a challenge that relates to a local or relevant environmental problem. Students then learn the science and engineering required to help them solve this challenge. The challenge is mentioned throughout the unit to remind students of the purpose of their learning.

Roadmap

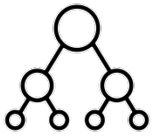
The roadmap is an image to help guide students through the unit by highlighting key science concepts and their connections to the unit challenge. It is often referenced throughout the unit to remind students what they are learning and how the topic connects to the unit challenge.

Culminating Experience

Each unit ends with a culminating experience where students are asked to apply what they have learned in the unit to solve an aspect of the unit challenge. The culminating experience provides students an opportunity to extend their science learning through an open-ended project that encourages innovation and creativity in solving a real-world problem. Students are typically asked to share their findings with their family or the larger community through videos, prototypes, or other creative outputs.

How Students Learn

We outline below various ways that students construct knowledge as they use the Green Ninja curriculum. These methods are all supported by the idea of transformational teaching and learning, where the goal is to create knowledge through the transformation of experience, rather than the transmission of facts from teacher to student. Students get plenty of practice thinking critically, goal-setting, and reflecting on what they learn, while teachers are supported by background information and teacher tips to help guide this type of instruction. Green Ninja lessons utilize inquiry-based learning, project-based learning, and service learning—all forms of transformational education.



Models

Many of the lessons use models. In some lessons, the models are used by the teacher as part of guided inquiry instruction. Students then use the models to find answers and/or explain a phenomenon. In other learning sequences, students develop their own models and use them to answer a question and/or explain a phenomenon.

Data Analysis

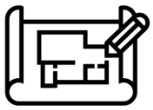
Green Ninja encourages students to collect and analyze their own data throughout the middle school curriculum. To foster data literacy and promote real-world investigations, Green Ninja partnered with device-makers at PocketLab to provide students with access instruments that gather real-time data such as velocity, acceleration, temperature, carbon dioxide, humidity, pressure, light, and magnetic field. Integrating PocketLab devices with Green Ninja curriculum allows students the opportunity to conduct their own investigations and answer their own questions.

Experimentation

Experimentation is a key component of the Green Ninja curriculum. In some lesson sequences, the experiments are pre-written, and students conduct the experiment in order to construct explanations and/or engage in argument from evidence. In other lesson sequences, students plan and carry out their own investigations in order to answer a question or explain a phenomenon.

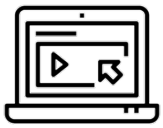
Activities

Students participate in a variety of hands-on and kinesthetic activities, including games, in order to better understand concepts and processes. The use of these types of activities provides differentiation in the curriculum and helps to engage a wide variety of learners.



Design Challenges

Opportunities to design solutions to problems give students real-world experience to the systematic process that involves defining the problem, then generating, testing, and improving solutions. Students have many opportunities to participate in this iterative process throughout the Green Ninja curriculum.



Research

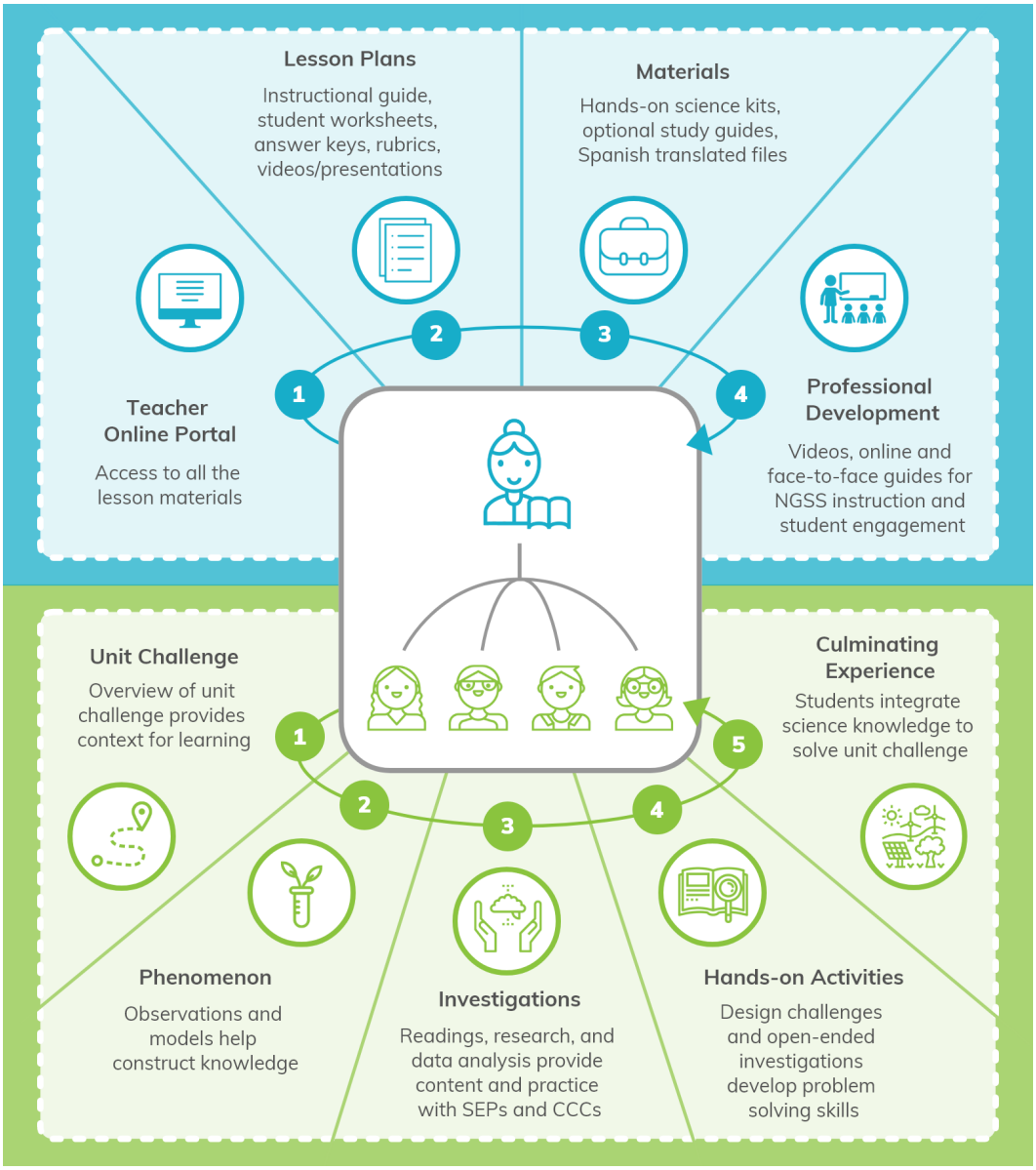
Obtaining, evaluating, and communicating information are essential science practices used regularly throughout the Green Ninja curriculum. In some research projects, students are provided with reading material. In other projects, students utilize online sources, either suggested by the teacher or through strategic searching. In yet another type of research project, students conduct authentic field study research in an ecosystem simulation activity. Students communicate their findings in a variety of ways including presentations, reports, poster sessions, and jigsaw activities.

How a Unit Works - Teacher and Student Perspective

We know that learning science without a textbook is different. In our approach, students make sense of the world through a variety of different methods including hands-on investigations, design challenges, scientific reading, online simulations, and the development of models. Below we describe the structure behind every unit and the components to support both teachers and students.

The online teacher portal includes everything a teacher would need to plan for and implement an NGSS unit of instruction. This includes access to a detailed lesson plan and all student facing materials such as readings, assessments, lab instructions and worksheets. These materials can be printed or shared with students electronically. Material kits support hands on student learning, while teacher professional development is integrated into the lesson plans and also offered externally.

Students are presented with a unit challenge that serves as the driving problem during the entire unit. Students will then experience multiple phenomenon-based lessons, investigations and hands on activities as they construct knowledge about the science and engineering topics that are related to the unit challenge. At the end of the unit, students use what they have learned in their culminating experience to solve the unit challenge.



Sample Unit - Teacher and Student Experience

The classroom experience for teachers and students is shown below using the Grade 7 Unit 3 Food unit as an example.

Unit Challenge: Reduce the carbon footprint of food.
Science Methods: Expand on concepts of energy and chemical reactions to estimate the environmental impact of food.
Culminating Experience: Create a classroom cookbook of low-carbon recipes.

Lessons	Teacher Experience	Student Experience
3.1-3.2	Present students with the **unit challenge** and **roadmap** to explain how students will solve a real-world issue. Use the **pre-assessment** to gauge student prior knowledge.	Take and review the pre-assessment. The **unit challenge** is introduced. Discussion on unit **roadmap** about food.
3.3-3.6	Revisit **phenomenon** to discuss the role of energy in plants. Use chain notes as a **formative assessment**. Have students **collect** and **analyze** carbon dioxide data to observe plants' effects on concentrations. **Callout box Emphasize Modeling (SEP-2)**	**Models**: Develop mind maps and build physical models of photosynthesis. **Data Analysis**: Use a PocketLab sensor to collect and analyze data to investigate how plants affect carbon dioxide concentrations. **Phenomenon: "This 275-foot tree grew from water and air."**
3.7-3.8	Prep chemical reaction stations for students and demo **phenomenon**. Revisit **roadmap** to frame discussion around baking bread.	**Data Analysis**: Using a PocketLab sensor, experiment with chemical reactions to look for patterns and explain why results are different when different substances interact. **Phenomenon: "When we mix different substances together, we get different results."**
3.9-3.12	Prep materials for design challenge. **Callout box Emphasize Patterns (CCC-1)**	**Design Challenge:** Build, test, and redesign devices that will absorb or release thermal energy through chemical reactions.
3.13-3.20	Use photosynthesis cubes as a **summative assessment**. Tie **roadmap** and **phenomenon** to connect energy concepts. Facilitate Venn diagram to compare and contrast photosynthesis and cellular respiration. **Callout box Emphasizing Cycles of Matter (CCC-5)**	**Models:** Create a digestive system flow chart, develop models of cellular respiration, and develop storyboards to explain cellular respiration. **Phenomenon: "People (and other animals) get their energy from food."**
3.21-3.23	Help students analyze their own food choices using CER and use project as a **summative assessment**. **Callout box Emphasizing Engaging in Argument from Evidence (SEP-7)**	**Research Investigation:** Visit MyPlate website to analyze healthy food choices.
3.24-3.27	Facilitate students' expertise in a jigsaw activity. **Callout box Emphasizing Energy Flows (CCC-5)**	**Activities:** Create flow charts on food life cycle. Play a game to estimate greenhouse gases of different foods. Research on greenhouse gases. Create an informational pamphlet to share with the class. **Phenomenon: "A veggie burrito has a lower carbon footprint than a beef burrito."**
3.28	Discuss diverse role models and applications of science.	Learn about Hawaiian scientist, Dr. Kawika Winter and his sustainable food production practice.
3.29-3.33	Prep a gallery walk and encourage students to share recipes with family.	**Culminating Experience**: Create a classroom cookbook of low-carbon recipes.
3.34	Review **summative assessments** and provide feedback.	Take the post-assessment and review the learning.

Program Information

Program Components

Green Ninja combines a balance between print, technology, and kits to deliver an effective and engaging science experience for teachers and students.

Teacher Portal

Access the lesson plans, teacher files, and student fies through the online teacher portal.

Remote Learning Program

Teach online using our remote learning framework.

Materials Kit

Support hands-on labs and activities with our materials kit.

Teacher Campanion

Prep and plan for class using the printed teacher edition.

Student Workbooks

Provide students with worksheets, readings, and assessments using the printed student workbooks.

Printed Student Materials

Support science learning with printable student files through the teacher protal.

Dual Language – Spanish

Get dual language support in Spanish for all student-facing materials.

Unit Concept Checkpoints

Provide additional practice and reflection through our formative assessment checkpoints.

PocketLab Devices

Gather and analyze real-time data with one of the three PocketLab devices provided in our materials kit.

Leveled Readings

Access supplemental reading at multiple grade levels through Newsela.

Google Classroom

Share editable files with your students through Google Classroom.

Single Sign On

Access the teacher portal through Clever's single sign-on.

Program Structure

GRADES
Includes grades 6-8

→

UNITS
Six units per grade

→

LESSONS
25-35 lessons per unit

Grade Structure

Grade 6
Climate: Scientific Principles and Communication

Unit 1 Energy and Climate
(27 lessons)
Unit 2 Home Energy
(35 lessons)
Unit 3 Weather and Climate
(31 lessons)
Unit 4 Protecting Plants and Animals
(23 lessons)
Unit 5 Reducing Pollution and Waste
(37 lessons)
Unit 6 Scientific Storytelling
(27 lessons)

Grade 7
Resources: Investigative Methods and Conservation

Unit 1 Minerals
(26 lessons)
Unit 2 Petroleum
(35 lessons)
Unit 3 Food
(34 lessons)
Unit 4 Soil
(26 lessons)
Unit 5 Water: Life and Danger
(27 lessons)
Unit 6 Ecosystems
(37 lessons)

Grade 8
Living Systems: Computational Thinking and Design Solutions

Unit 1 Exploring Early Earth
(29 lessons)
Unit 2 Evolving Life on Earth
(31 lessons)
Unit 3 Earth from Space
(31 lessons)
Unit 4 Humans and Life
(35 lessons)
Unit 5 Transportation
(29 lessons)
Unit 6 Future Energy
(26 lessons)

Unit Structure

A typical unit contains all the components below, but not necessarily in this exact order.

Beginning
↓
End

- Unit challenge
- Roadmap
- Pre-assessment
- Phenomenon-based lesson sequences
- Call out SEP and CCC boxes
- Formative assessment
- Summative assessment
- Culminating experience

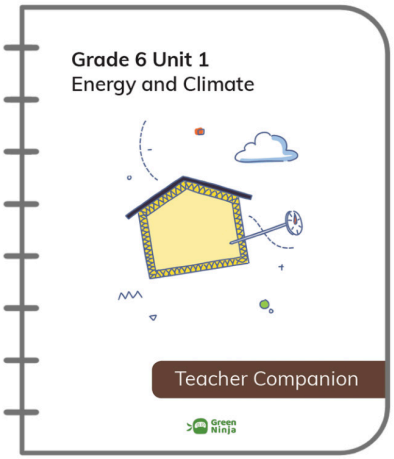
Lesson Structure

45-minute lesson plans include the following:

- Instructional guides
- Student worksheets
- Answer keys
- Rubrics/assessments
- Spanish translated student facing files
- Videos/presentations

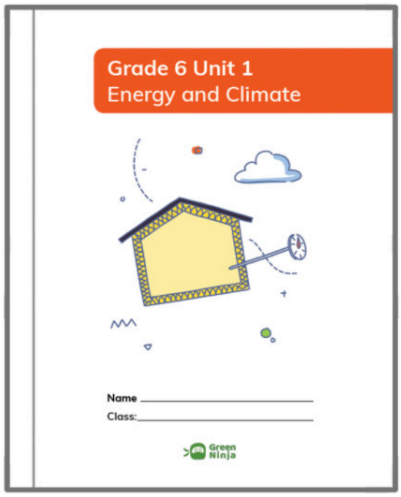
Printed Materials

Green Ninja is designed as a digital platform providing teachers with everything they need to guide students through authentic NGSS learning experiences. Teacher Companions and student workbooks are additional tools to support different teaching and learning styles. Our printed materials are thoughtfully designed to support an offline learning experience.



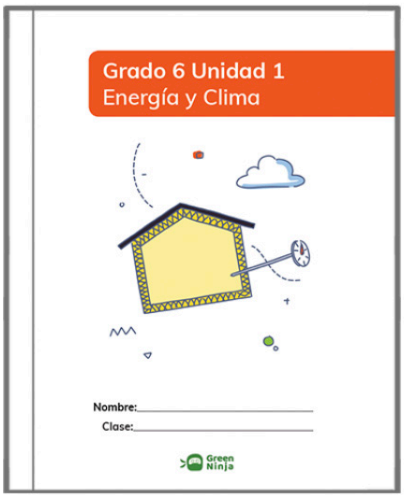
Teacher Companion

The Teacher Companion helps teachers plan through the curriculum with access to the unit overview, lesson plans and student worksheets. Visual reference of the Teacher Companion for one unit of grade 6 is provided.



Student Workbook

The student workbook provides students with worksheets, readings, assessments, and End-of-Unit Study Guide. Visual reference of the student workbook for one unit of grade 6 is provided, including an example in Spanish.



Student Workbook (Spanish)

To support Spanish-speaking students and English-Spanish dual immersion programs, all our student facing materials (print and digital) have been translated to Spanish. The translations have been completed by a team of native Spanish speakers who have a science background.

What's Been Translated

- Presentations shown in class
- Student reading, lab instructions, and worksheets
- Assessments and rubrics
- Answer keys for teachers
- Vocabulary

Materials Kit & Access to Computers

Materials Kit

Hands-on activities are a regular part of every Green Ninja classroom, and we offer materials kits so that teachers have the equipment and supplies they need to make science come alive for their students. A complete list of the materials in the kit is provided to aid districts who would prefer to purchase the materials themselves. We strive to ensure that the listed materials are as resource-conscious and affordable as possible. The materials are offered as a Starter Kit that contain non-consumables and consumables for 32 students. Refill kits are offered to replace the consumables for additional classes or future years as needed.

Access to Computers

Exposing students to emerging and innovative technologies can encourage student engagement in science subjects and help build student confidence in the use of technology. Each grade will vary on the amount of time students need access to computers, as highlighted below.

Grade 6 – Access to computers will be needed in about 25% of class meetings.

In Unit 1, a web-based game, Carbon Command, allows students to explore the phenomena of climate change as they answer questions about the science of climate change. Later, while designing a well-insulated home, students use a PhET online simulation to explore the phenomena of how temperature and energy change depending on the type, state, and amount of matter. In Unit 2, students measure and analyze data from their home using the Green Ninja Energy Tracker software and their online smart meters, while in Unit 3, students update and analyze weather data for three adopted cities using modern websites that display real-time weather data from around the world. In Unit 6, students use video cameras and video editing software to create their own films about solutions to climate change.

Grade 7 - Access to computers will be needed in about 20% of class meetings.

In Unit 2, students locate and mark the top 10 oil reserves worldwide to compare and contrast these locations using satellite imagery of these reserves to come up with explanations for the phenomenon of why petroleum, a nonrenewable resource, is distributed unevenly around the world. In Unit 5, students use an online simulation to analyze how changes in temperature produce changes in the physical state of water.

Grade 8 - Access to computers will be needed in about 30% of class meetings.

In Unit 1, students are introduced to the computer programming software, Scratch, where they apply their knowledge of Newton's Laws of Motion and Earth's formation to create simulations. In Unit 3, students use an online PhET Wave of a String simulation to explore the relationships between amplitude, frequency, wavelength, and wave energy. Students again use the computer programming software, Scratch, to create an animated story or game about how satellites work using wave behavior. In Unit 4, students continue to develop their programming skills using Scratch towards more complex outcomes where they design models that show how mutations in genes can change proteins and how this affects an organism. Further, in this unit students prepare a documentary using video technology such as smartphones, tablets, or computer applications for highlighting their case study and advocating for genetic variability. In Unit 6, students use a variety of available technologies including collaborative software, online maps, and computer programming to help them develop a model of a sustainable community.

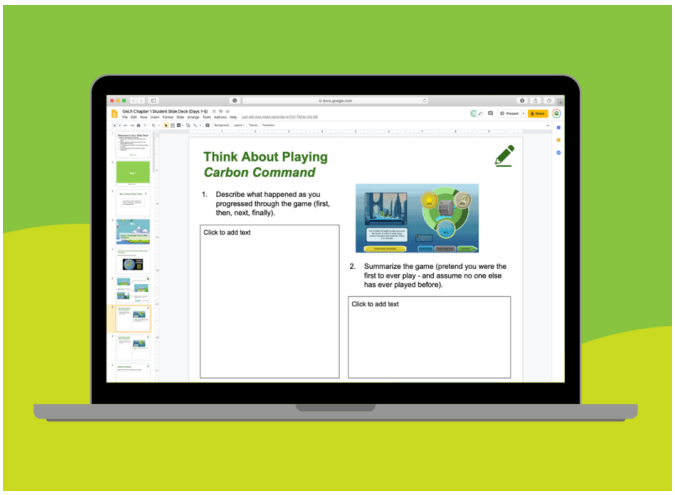
Remote Learning Program

Our team at Green Ninja has developed a Remote Learning Program to help teachers plan for and teach remotely during the 20/21 academic year. The program is designed around hyperlinked slides that both teachers and students use for content, investigations, and assessment. The program can be provided to teachers and used immediately, or easily modified to meet the needs of teachers and students. It is built around a Google Classroom experience (i.e. Google Docs, Slides, Forms), but accommodations can be made for use with other learning management systems.

Teacher Materials

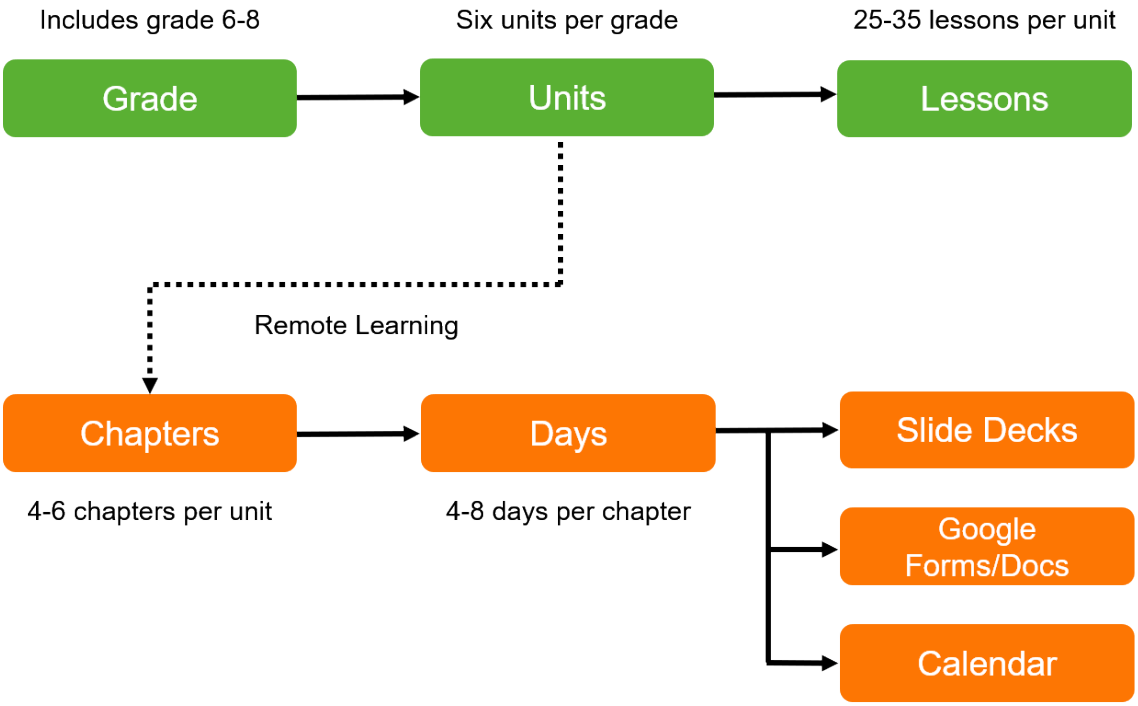
This approach can be applied asynchronously or via mixed in-person and online environments. Teachers will get access to the following:

- Interactive teacher slide decks: to provide teachers with guidance and answers.
- Interactive student slide decks: students can be given their own copy to take notes, investigate, and watch videos.
- Google docs: assignments to be hyperlinked in the slide decks.
- Google Forms: formative and summative assessments to be hyperlinked in the slide decks.
- Student calendar: For students to keep track of what's due.



Flowchart

This flowchart explains how our remote learning chapters fit into the current structure of the Green Ninja program. The green boxes represent how our original curriculum is structured with grades, units, and lessons. The orange boxes represent how our new remote learning content is structured with grade, units, chapters, and days. Each chapter includes a slide deck, Google Forms/Docs, and a student calendar.



PocketLab

Green Ninja has partnered with the device-makers and educators at PocketLab to improve on the hands-on opportunities within the Green Ninja curriculum. The PocketLab devices included in the Green Ninja materials kit provide students with the ability to gather and analyze real-time data such as velocity, acceleration, temperature, carbon dioxide, humidity, pressure, light, and magnetic field. These state-of-the-art high tech devices help students explore the world around them while developing skills in data collection and analysis. One or more of these three devices are included in the Green Ninja materials kits.

Meet the Devices

PocketLab Voyager

This PocketLab device can measure motion, altitude, light, magnetic fields and more.

PocketLab Air

This PocketLab device can measure carbon dioxide, ozone, particulate matter (PM1, PM2.5, PM10), temperature, humidity, barometric pressure, and light.

PocketLab Weather

This PocketLab device can measure temperature, humidity, light, barometric pressure, altitude, heat index, and dew point.

Device Use Across Grade Levels

The Grade 6, 7, and 8 material kits come with the PcoketLab Voyager, PocketLab Air , and PocketLab Weather. Below are a sample of lessons that use these devices, but there are other ways to use these devices in your classroom.

Grade 6

PocketLab Weather

Lesson 1.4 Investigating Temperature Part I
Lesson 1.10 The Greenhouse Effect Part III
Lesson 2.17 Thermal Mass Investigation Part III
Lesson 3.6 Sea Breeze Part I
Lesson 3.22 Oceans Part I

PocketLab Air

Lesson 5.4 Tracking Waste

Grade 7

PocketLab Voyager

Lesson 1.4 Phone Fields
Lesson 1.12 Looking for Evidence: Seafloor Part III
Lesson 3.7 Investigating Chemical Reactions Part I
Lesson 3.10 Engineer It Part II

PocketLab Air

Lesson 2.23 Air Quality Part I
Lesson 2.26 Air Quality Part IV
Lesson 3.6 Measuring Carbon Dioxide During Photosynthesis
Lesson 3.17 Measuring Carbon Dioxide During Cellular Respiration

Grade 8

PocketLab Voyager

Lesson 3.7 Making Waves
Lesson 3.13 Wave Behavior Mystery Box
Lesson 3.19 Analog and Digital Part II
Lesson 5.16 Measuring Magnetic Fields

Curriculum Framework

Progression of Curriculum

The Green Ninja curriculum has designed a series of learning experiences that have a logical and natural progression through Grades 6, 7 and 8. In Grade 6, students build a foundation of understanding nature through the themes of energy and climate. They then apply that knowledge in Grade 7 when they study Earth's primary resources, where they come from, and how these resources can be conserved. Finally in Grade 8, students apply much of what they've learned in earlier years towards understanding life on Earth, and how we can design a more sustainable future for all living creatures. In each year, the level of science expands as students develop a better understanding of how to apply the primary SEPs and CCCs towards solving real-world problems improves. As students move through their grade levels, so does the scale of their focus, from local in Grade 6, to regional in Grade 7, and to global in Grade 8. And throughout the science learning experience, students continue to develop and refine their abilities to use data and technology to achieve their goals, and to use various communication methods and tools to effectively share science with their intended audience. This progression of learning outcomes is designed to continually engage students in meaningful science experiences that build from year to year.

Progression of Themes	**Grade 6** Climate: Scientific Principles and Communication	**Grade 7** Resources: Investigative Methods and Conservation	**Grade 8** Living Systems: Computational Thinking and Design Solutions
Environmental storyline	**Energy and Climate**: Students study Earth's climate and solutions to climate change. They learn the foundational concepts behind energy and climate.	**Conservation of Resources**: Students focus on five of Earth's major resources and investigate them to develop a deeper and practical understanding of how to conserve these resources.	**Life on Earth:** Students focus on how life came to be on Earth, what our current state is, and how we can design a more sustainable future for everyone.
Investigations and Problems	**Local Focus**: Students focus on local issues they can control or observe, such as energy use in the home, local weather, and local pollution.	**Regional Focus**: Students investigate regional access to and conservation of resources such as food, water, oil and minerals.	**Global Focus**: Student investigations include a global perspective, such as observing the Earth from space, evolution of life on Earth, and predicting how the Earth will change in the future.
Use of Data and Technology	**Personal Data:** Students develop experience collecting and analyzing data relevant to their personal lives, such as energy data from their home.	**Making Materials:** Students explore how things are made, from a cell phone, and oil to soil and food. Various 'technologies' contribute to these everyday items.	**Computer Programming:** Students develop computational thinking skills via integration of Scratch programming into three Units of instruction
Communication: Opportunities are provided for students to develop their communication skills	**Story and Film**: Students participate in a Unit focused around storytelling and filmmaking that directs their earlier science learning towards a science-influenced film about solutions to an environmental problem.	**Public Service Announcement (PSA):** Students collect data related to transportation and use this in their PSA encouraging viewers to reduce their transportation carbon footprint.	**Animated Films:** Students use the Scratch programming environmental to create animated films including a documentary highlighting the need to increase genetic diversity.

Differentiated Learning

The Next Generation Science Standards provide an excellent framework for differentiated teaching and learning and the Green Ninja model utilizes and expands on this framework through the creation of a broad array of learning frameworks (https://adoption.greenninja.org/learning-styles). Green Ninja curriculum provides a rich learning environment that can engage many types of learners. Students with disabilities, English Language Learners, as well as students with different learning modalities all benefit from the diversity of teaching and learning strategies.

Creating a Climate for Differentiated Instruction
The differentiated instruction strategies utilized in the Green Ninja curriculum promotes a lively classroom environment through activities, discussions and the sharing of student work. We look at this classroom climate as a large system composed of natural learning subsystems.

- **Emotional Learning System**: Green Ninja lessons strive to provide multiple ways for students to express themselves—from writing, to role-playing, to creating animations and videos—meeting the needs of the Emotional Learning System.
- **Social Learning System**: The needs of this learning system are met as students work in teams to understand concepts and develop solutions to challenges. Additionally, there are numerous opportunities for scientific discussion and debate.
- **Physical Learning System**: Active problem solving is a key component in Green Ninja lessons. Students regularly participate in active, tactile, and kinesthetic learning experiences to meet the needs of the Physical Learning System.
- **Cognitive Learning System**: This is where students learn new knowledge and skills. Learning is facilitated through accessing prior knowledge and engaging the senses. The Cognitive Learning System is closely connected to the previously mentioned learning systems; learning will not take place if the emotional, social, and physical needs are not met.
- **Reflective Learning System**: Green Ninja lessons include thinking strategies as well as metacognition, meeting the needs of the Reflective Learning System and giving students the opportunity to analyze situations, make plans, and work toward goals and/or solutions.

Additional Support For Differentiated Learning
The instructional strategies discussed above create an ideal learning climate, and they also provide the means to engage all types of learners. While it may not be possible to actually know the intelligences and learning profiles of all students, the differentiated approach used by Green Ninja ensures that all students have access to learning. We know that having a classroom full of diverse learners is challenging, even with this variety of teaching strategies, so we offer additional support for teachers:

- **Documents in Spanish**: Every student facing file and all vocabulary are available in Spanish, providing additional support for Spanish speaking learners and dual language programs.
- **Student Notebooks**: Students develop their own notebooks to organize observations, analyze data, and communicate their thinking. Keeping a science notebook integrates literacy into the curriculum as students develop writing skills and process their thinking.
- **Culminating Experiences**: Open-ended culminating experiences in every unit provide challenges and opportunities for even very advanced learners to thrive and excel.
- **Student Workbook** are available for each unit in print and digital format. It provides additional support and practice for all types of learners including EL learners and advanced learners.

Assessments

What Do Our Assessments Look Like

There are various opportunities for both formative and summative assessment throughout Green Ninja's curriculum. We support formative assessment opportunities throughout many lessons through exit tickets, checkpoint questions, and worksheets with answer keys. Our summative assessments are typically performance based and include rubrics to support the assessment of the three dimensions of NGSs. The teacher portal provides all the necessary files for each type of assessment. The types of assessments are given below.

- **Pre-assessments**: Helps gauge students' knowledge prior to starting the unit. This will help identify any existing preconceptions and the level of content knowledge.
- **Exit Tickets**: These short checkpoints help inform teachers of a student's understanding during the lesson or unit. Typically, these are given as open-ended question relating to the lesson topic.
- **Worksheets/Handouts**: A teacher key is typically provided to provide teacher guidance on how to evaluate student responses.
- **Concept Checkpoints**: Thought-provoking multiple-choice questions that are specifically designed to asses student understanding of particular science concepts. Many of the items are designed especially to prepare students for state or national assessments.
- **Rubrics**: Given that most summative assessments are performance based, rubrics are used to help evaluate student work, and the alignment with the unit's key science core ideas, practices and cross cutting concepts.
- **Performance Assessments**: Each of the culminating projects ask students to extend their science learning and serves as a performance assessment.
- **Summative Assessments**: All units include a summative assessment to evaluate student understanding of the primary science content.

Have a question?
Please contact us at contact@greenninja.org

For more information, visit our website at **www.greenninja.org**