Unit 02: Inquiry, Makerspaces or Innovation Stations

Content Area: **English Language Arts**
Course(s):
Time Period: **Trimester 1**
Length: **Taught at the beginning of the year; All Year Implementation**
Status: **Published**

Brief Summary of Unit

Kindergarten students will be introduced to makerspace or innovation stations at the beginning of the year. Procedures and behavioral expectations for the kindergarten students while participating at a makerspace station will be introduced, modeled, and practiced. They will have the opportunity to interact in a fixed makerspace or portable innovation stations which allows for collaboration and creativity while fostering necessary twenty-first century skills. After the initial orientation, students will be able to go to a makerspace or innovation station after the library media lesson. The library class usually starts with a lesson and students take turns checking out books and creating at a makerspace at the end of the library media period throughout the school year.

This unit is designed to be part of a developmental progression across grade levels and make interdisciplinary connections across content areas including physical and social sciences, technology, career readiness, cultural awareness, and global citizenship. During this course, students are provided with opportunities to develop skills that pertain to a variety of careers.

Revision Date: July 2026

Standards

The identified standards reflect a developmental progression across grades/ levels and make interdisciplinary connections across content areas including social sciences, technology, career readiness, cultural awareness and global citizenship. The standards that follow are relevant to this course in addition to the associated content-based standards listed below.

Information Literacy: This unit challenges students to locate, evaluate, and use information effectively. Information literacy includes, but is not limited to, digital, visual, media, textual, and technological literacy. Lessons may include the research process and how information is created and produced; critical thinking and using information resources; research methods, including the difference between primary and secondary sources; the difference between facts, points of view, and opinions, accessing peer-reviewed print and digital

library resources; the economic, legal, social, and ethical issues surrounding the use of information.

Information Literacy for Elementary Educators

L.RF.K.1	Demonstrate understanding of the organization and basic features of print.
L.KL.K.1	With prompting and support, develop knowledge of language and its conventions when speaking and listening.
LA.SL.K.1	Participate in collaborative conversations with diverse partners about kindergarten topics and texts with peers and adults in small and larger groups.
RL.CR.K.1	With prompting and support, ask and answer questions about key details in a literary text (e.g., who, what, where, when, why, how).
LA.SL.K.1.A	Follow agreed-upon norms for discussions (e.g., listening to others with care and taking turns speaking about the topics and texts under discussion).
RI.CR.K.1	With prompting and support, ask and answer questions about key details in an informational text (e.g., who, what, where, when, why, how).
LA.SL.K.1.B	Continue a conversation through multiple exchanges.
RI.CI.K.2	With prompting and support, identify the main topic and key details of an informational text (e.g., who, what, where, when, why, how).
RL.IT.K.3	With prompting and support, identify characters, settings, and major events in a story.
LA.SL.K.3	Ask and answer questions in order to seek help, get information, or clarify something that is not understood.
RI.IT.K.3	With prompting and support, describe the connection between two individuals, events, ideas, or pieces of information in a text.
RL.TS.K.4	Recognize common types of literary texts (e.g., storybooks, poems) and identify features of print (front cover, back cover, and title page of a book).
LA.SL.K.6	Speak audibly and express thoughts, feelings, and ideas clearly.
RL.PP.K.5	With prompting and support, name the author and illustrator of a story and define the role of each in telling the story.
SL.PE.K.1	Participate in collaborative conversations with diverse partners about kindergarten topics and texts with peers and adults in small and larger groups.
SL.PE.K.1.A	Follow agreed-upon norms for discussions (e.g., listening to others with care and taking turns speaking about the topics and texts under discussion).
SL.II.K.2	Confirm understanding of a text read aloud or information presented orally or through other media by asking and answering questions about key details and requesting clarification if something is not understood.
SL.ES.K.3	Ask and answer questions in order to seek help, get information, or clarify something that is not understood.
SL.UM.K.5	Add drawings or other visual displays to descriptions as desired to provide additional detail.
SL.AS.K.6	Speak audibly and express thoughts, feelings, and ideas clearly.
I	Inquire: Build new knowledge by inquiring, thinking critically, identifying problems, and developing strategies for solving problems.
I.A	Learners display curiosity and initiative by:

I.A.1	Formulating questions about a personal interest or a curricular topic.
I.A.2	Recalling prior and background knowledge as context for new meaning.
I.B.1	Using evidence to investigate questions.
I.B.3	Generating products that illustrate learning
I.C.1	Interacting with content presented by others.
I.C.2	Providing constructive feedback.
I.C.3	Acting on feedback to improve.
I.C.4	Sharing products with an authentic audience
I.D.1	Continually seeking knowledge.
I.D.2	Engaging in sustained inquiry.
I.D.3	Enacting new understanding through real-world connections.
I.D.4	Using reflection to guide informed decisions.
V.A.3	Engaging in inquiry-based processes for personal growth.
V.B.1	Problem solving through cycles of design, implementation, and reflection.
V.B.2	Persisting through self-directed pursuits by tinkering and making.
V.C.1	Expressing curiosity about a topic of personal interest or curricular relevance
V.C.2	Co-constructing innovative means of investigation.
V.C.3	Collaboratively identifying innovative solutions to a challenge or problem
V.D.1	Iteratively responding to challenges.
V.D.3	Open-mindedly accepting feedback for positive and constructive growth.
II.B.1	Interacting with learners who reflect a range of perspectives.
II.C.1	Engaging in informed conversation and active debate.
II.C.2	Contributing to discussions in which multiple viewpoints on a topic are expressed.
II.D.1	Seeking interactions with a range of learners.
II.D.2	Demonstrating interest in other perspectives during learning activities.
IV.A.1	Determining the need to gather information.
IV.A.2	Identifying possible sources of information.
IV.A.3	Making critical choices about information sources to use.
IV.B.1	Seeking a variety of sources.
IV.B.4	Organizing information by priority, topic, or other systematic scheme.
VI.D.1	Personalizing their use of information and information technologies.
VI.D.3	Inspiring others to engage in safe, responsible, ethical, and legal information behaviors.
CRP.K-12.CRP1	Act as a responsible and contributing citizen and employee.
CRP.K-12.CRP1.1	Career-ready individuals understand the obligations and responsibilities of being a member of a community, and they demonstrate this understanding every day through their interactions with others. They are conscientious of the impacts of their decisions on others and the environment around them. They think about the near-term and long-term consequences of their actions and seek to act in ways that contribute to the betterment of their teams, families, community and workplace. They are reliable and consistent in going beyond the minimum expectation and in participating in activities that serve the greater good.
CRP.K-12.CRP2.1	Career-ready individuals readily access and use the knowledge and skills acquired through

	experience and education to be more productive. They make connections between abstract concepts with real-world applications, and they make correct insights about when it is appropriate to apply the use of an academic skill in a workplace situation.
CRP.K-12.CRP4.1	Career-ready individuals communicate thoughts, ideas, and action plans with clarity, whether using written, verbal, and/or visual methods. They communicate in the workplace with clarity and purpose to make maximum use of their own and others' time. They are excellent writers; they master conventions, word choice, and organization, and use effective tone and presentation skills to articulate ideas. They are skilled at interacting with others; they are active listeners and speak clearly and with purpose. Career-ready individuals think about the audience for their communication and prepare accordingly to ensure the desired outcome.
CRP.K-12.CRP6.1	Career-ready individuals regularly think of ideas that solve problems in new and different ways, and they contribute those ideas in a useful and productive manner to improve their organization. They can consider unconventional ideas and suggestions as solutions to issues, tasks or problems, and they discern which ideas and suggestions will add greatest value. They seek new methods, practices, and ideas from a variety of sources and seek to apply those ideas to their own workplace. They take action on their ideas and understand how to bring innovation to an organization.
CRP.K-12.CRP7.1	Career-ready individuals are discerning in accepting and using new information to make decisions, change practices or inform strategies. They use reliable research process to search for new information. They evaluate the validity of sources when considering the use and adoption of external information or practices in their workplace situation.
CRP.K-12.CRP8.1	Career-ready individuals readily recognize problems in the workplace, understand the nature of the problem, and devise effective plans to solve the problem. They are aware of problems when they occur and take action quickly to address the problem; they thoughtfully investigate the root cause of the problem prior to introducing solutions. They carefully consider the options to solve the problem. Once a solution is agreed upon, they follow through to ensure the problem is solved, whether through their own actions or the actions of others.
CRP.K-12.CRP9.1	Career-ready individuals consistently act in ways that align personal and community-held ideals and principles while employing strategies to positively influence others in the workplace. They have a clear understanding of integrity and act on this understanding in every decision. They use a variety of means to positively impact the directions and actions of a team or organization, and they apply insights into human behavior to change others' action, attitudes and/or beliefs. They recognize the near-term and long-term effects that management's actions and attitudes can have on productivity, morals and organizational culture.
CRP.K-12.CRP12.1	Career-ready individuals positively contribute to every team, whether formal or informal. They apply an awareness of cultural difference to avoid barriers to productive and positive interaction. They find ways to increase the engagement and contribution of all team members. They plan and facilitate effective team meetings.
III.A.1	Demonstrating their desire to broaden and deepen understandings.
III.A.2	Developing new understandings through engagement in a learning group.
III.A.3	Deciding to solve problems informed by group interaction.
III.B.1	Using a variety of communication tools and resources.
III.B.2	Establishing connections with other learners to build on their own prior knowledge and create new knowledge
III.C.1	Soliciting and responding to feedback from others.
III.D.1	Actively contributing to group discussions.
III.D.2	Recognizing learning as a social responsibility.
TECH.8.1.2.A.CS1	Understand and use technology systems.

TECH.8.1.2.A.CS2	Select and use applications effectively and productively.
TECH.8.1.2.B	Creativity and Innovation: Students demonstrate creative thinking, construct knowledge and develop innovative products and process using technology.
TECH.8.1.2.B.CS1	Apply existing knowledge to generate new ideas, products, or processes.
TECH.8.1.2.E.1	Use digital tools and online resources to explore a problem or issue.
TECH.8.1.2.E.CS1	Plan strategies to guide inquiry
TECH.8.1.2.F	Critical thinking, problem solving, and decision making: Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.
TECH.8.2.2.A.CS2	The core concepts of technology.
TECH.8.2.2.C.1	Brainstorm ideas on how to solve a problem or build a product.
TECH.8.2.2.C.CS3	The role of troubleshooting, research and development, invention and innovation and experimentation in problem solving

Essential Questions

- How can a makerspace change our learning experience?
- How are students empowered as design thinkers and creators?
- How can a makerspace be used for collaboration, exploration and creation?
- How can design thinking change how I view success?
- How can I solve a problem?
- How do I develop perseverance through tinkering and play?
- What can I create today?
- What can I learn about my mistakes?
- What did I learn from trying today?
- Why are exploration and creation an important part of learning?

Students Will Know/Students Will Be Skilled At

- Communicating (listening, speaking with clarity) while collaborating with others.
- Identifying a problem or challenge.
- Learning from mistakes and trying again.
- Listening, sharing ideas, and working collaboratively with others
- Makerspaces are locations for students to create, tinker, make, and explore their own thoughts and interests; the learning is personalized.
- Testing ideas and making improvements.
- To seek help, as needed.
- Tolerating frustration and building a growth mindset.
- Using tools and resources while interacting in a Makerspace.

Evidence/Performance Tasks

Students demonstrate differentiated proficiency through both formative and summative assessments in the classroom. Based on individual student readiness and performance, assessments can be implemented as formative and/or summative.

Developmental progression across years in media is evidenced through benchmark assessments as part of the media specialist's Student Growth Objective (SGO). Follow up diagnostic assessments are used to target skill remediation. Student proficiency allows for additional or alternative assessment based on demonstration or absence of skill.

The performance tasks listed below are examples of the types of assessments teachers may use in the classroom and the data collected by the district to track student progress.

- Benchmark/Alternative-Students will be able to ask questions and identify a simple problem or challenge.
- Benchmark/Alternative-Students will be able to reflect on what they learned and identify one thing they would do differently next time.
- Formative-Demonstrate acceptable behavior in a makerspace station.
- Formative-Students will present both informally and formally prototypes and plans.
- Formative-Students worked collaboratively with others in the group.
- Summative-Students will present both formally and informally products and creations in teams and individually.

Learning Plan

Media Specialist may personalize instruction during this unit and address the distinct learning needs, interests, aspirations, or cultural backgrounds of individual students.

During makerspace time, students are given tasks or challenges using the available materials rather than use the time to free play. While there is intrinsic value in play, a makerspace is intended to explicitly teach valuable life skills. According to Laura Fleming, A makerspace is "a metaphor for a unique learning environment that encourages tinkering, play, and open-ended exploration for all." Following the concept of a future-ready school, it "encourages and facilitates students to become increasingly self-directed as they create products of their learning that engage them in critical thinking, collaboration, and authentic problem solving." This unit is intended to teach design thinking, prototyping, and critical thinking. It fosters play, creativity, and team building. Most importantly, it bolsters social and emotional learning among students.

Media Specialists at the elementary level design their own unique lesson plans in order to incorporate the essential questions provided in this unit. The order in which this information is presented is dependent upon the variables specific to each elementary school community. For example, students may be called to the

carpet for a lesson followed by guided practice, then independent practice. After the lesson, students will check out books and go to a makerspace station.

Kindergarten students will be introduced to makerspace or innovation stations at the beginning of the year. Procedures and behavioral expectations for the kindergarten students while participating at a makerspace station will be introduced, modeled, and practiced. They will have the opportunity to interact in a fixed makerspace or portable innovation stations which allows for collaboration and creativity while fostering necessary twenty-first century skills. After the inital orientation, students will be able to go to a makerspace or innovation station after the library lesson. The library class usually starts with a lesson and students take turns checking out books and creating at a makerspace at the end of the library period throughout the school year. Suggested activites are listed below for this unit:

- At the beginning of each year, provide an orientation to makerspace that includes procedures and behavior expaectations.
- Introduce key vocabulary: makerspace, innovation station, build, create, design, test, improve, problem, solution, strong, balance, and stable.
- Mini Lessons may include: What is a makerspace? What are expected behaviors while at a makerspace station? What are some of the activities I can do at the different makerspace stations?
- Participate in creative and innovative tasks in a makerspace.
- Preview the essential questions and connect to learning throughout the unit.

Materials

The materials used in this course allow for integration of a variety of instructional, enrichment, and intervention materials that support student learners at all levels in the school and home environments. Associated web content and media sources are infused into the unit as applicable and available. Library media spaces are housed with a rich collection of core materials to use in the Makerspace area or at innovation stations.

Teacher Resource:

The World of Making by Laura Fleming

Suggested Supplemental Resources:

Select this link to view the Kindergarten Google Folder under media in the Grades K-5 folder.

Makerspace Center Signs (Google Doc)

Makerspace Presentation (Google Slides)

Instructional Material:

Legos

Lego bases- 4 pk, 10X10 $16.95 amazon (need 2 packs)

Marble Runs

Keva Planks

Power Clix

Magna tiles/Picasso tiles/Plagmags- Amazon, $66.99, 100 piece set

Magnetic Blocks

Dot and Dash Robots

Ozobots

Samsung Tablets

- Samsung Tablets necessary for Dash & Dots
- access online resources using QR code
- stop motion annimation
- coding apps

Hand Magnifiers - Set of 12 Lakeshore Catalog: item# LA444 $39.99

Real Bugs Discovery Kit Lakeshore Catalog: tem# DD646 $24.99

Survive the Quake Engineering Kit Lakeshore Catalog: item#DD121 $29.99

Snap Circuits

Quibits

Popsicle Sticks

Straws

Origami paper

Pipe cleaners

Craft sticks

Pom-poms

Stress-free coloring books

Colored Pencils

Crayons

Markers

Gear Stencils (Roylco Brand in School Specialty catalog)

Rainbow loom

Stick Together (Letsticktogether.com)

Cricut Explore Air Wireless Cutting Machine- Amazon, $199; Michaels, in store, $179

Duct tape creation station

5 Boogie Boards (doodling) https://www.myboogieboard.com/

Crossword puzzles

Games/Puzzles

Magnetic Poetry- Amazon, $19.95

Puzzles

Checkers/Chess

Brain puzzles

Materials

Cardboard

Toilet paper rolls

Duct tape

Hot Glue guns

Cups

Suggested Strategies for Modifications and Accommodations

Content specific accommodations and modifications as well as Career Ready Practices are listed here for all

students, including: Special Education, English Language Learners, At Risk of School Failure, Gifted and Talented, Students with 504.