

Unit 05: Spreadsheets

Content Area: **Template**
Course(s):
Time Period: **Full Year**
Length: **FY**
Status: **Published**

Standards Alignment

New Jersey Student Learning Standards

MA.3.MD	Measurement and Data
MA.3.MD.B	Represent and interpret data.
MA.3.MD.B.3	Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step “how many more” and “how many less” problems using information presented in scaled bar graphs.
AAAA.K-12.1	Inquire, think critically, and gain knowledge.
AAAA.K-12.1.1	Skills
AAAA.K-12.1.1.1	Follow an inquiry-based process in seeking knowledge in curricular subjects, and make the real-world connection for using this process in own life.
AAAA.K-12.1.1.2	Use prior and background knowledge as context for new learning.
AAAA.K-12.1.1.4	Find, evaluate, and select appropriate sources to answer questions.
AAAA.K-12.1.1.8	Demonstrate mastery of technology tools for accessing information and pursuing inquiry.
AAAA.K-12.1.1.9	Collaborate with others to broaden and deepen understanding.
AAAA.K-12.1.2	Dispositions in Action
AAAA.K-12.1.2.3	Demonstrate creativity by using multiple resources and formats.
AAAA.K-12.1.2.4	Maintain a critical stance by questioning the validity and accuracy of all information.
AAAA.K-12.1.2.6	Display emotional resilience by persisting in information searching despite challenges.
AAAA.K-12.1.2.7	Display persistence by continuing to pursue information to gain a broad perspective.
AAAA.K-12.1.3	Responsibilities
AAAA.K-12.1.3.5	Use information technology responsibly.
AAAA.K-12.1.4	Self-Assessment Strategies
AAAA.K-12.1.4.1	Monitor own information-seeking processes for effectiveness and progress, and adapt as necessary.
AAAA.K-12.1.4.2	Use interaction with and feedback from teachers and peers to guide own inquiry process.
AAAA.K-12.1.4.3	Monitor gathered information, and assess for gaps or weaknesses.
AAAA.K-12.1.4.4	Seek appropriate help when it is needed.
AAAA.K-12.2	Draw conclusions, make informed decisions, apply knowledge to new situations, and create new knowledge.
AAAA.K-12.2.1	Skills
AAAA.K-12.2.1.1	Continue an inquiry- based research process by applying critical- thinking skills (analysis,

synthesis, evaluation, organization) to information and knowledge in order to construct new understandings, draw conclusions, and create new knowledge.

AAAA.K-12.2.1.2	Organize knowledge so that it is useful.
AAAA.K-12.2.1.4	Use technology and other information tools to analyze and organize information.
AAAA.K-12.2.2	Dispositions in Action
AAAA.K-12.2.2.3	Employ a critical stance in drawing conclusions by demonstrating that the pattern of evidence leads to a decision or conclusion.
AAAA.K-12.2.2.4	Demonstrate personal productivity by completing products to express learning.
AAAA.K-12.2.3	Responsibilities
AAAA.K-12.2.3.1	Connect understanding to the real world.
AAAA.K-12.2.4	Self-Assessment Strategies
AAAA.K-12.2.4.1	Determine how to act on information (accept, reject, modify).
AAAA.K-12.3	Share knowledge and participate ethically and productively as members of our democratic society.
AAAA.K-12.3.1	Skills
AAAA.K-12.3.1.4	Use technology and other information tools to organize and display knowledge and understanding in ways that others can view, use, and assess.
AAAA.K-12.3.1.6	Use information and technology ethically and responsibly.
AAAA.K-12.3.2	Dispositions in Action
AAAA.K-12.3.2.1	Demonstrate leadership and confidence by presenting ideas to others in both formal and informal situations.
AAAA.K-12.3.2.2	Show social responsibility by participating actively with others in learning situations and by contributing questions and ideas during group discussions.
AAAA.K-12.3.3	Responsibilities
AAAA.K-12.3.3.5	Contribute to the exchange of ideas within and beyond the learning community.
AAAA.K-12.3.3.7	Respect the principles of intellectual freedom.
AAAA.K-12.3.4	Self-Assessment Strategies
AAAA.K-12.3.4.2	Assess the quality and effectiveness of the learning product.
AAAA.K-12.4	Pursue personal and aesthetic growth.
AAAA.K-12.4.1	Skills
AAAA.K-12.4.1.8	Use creative and artistic formats to express personal learning.
AAAA.K-12.4.4	Self-Assessment Strategies
AAAA.K-12.4.4.1	Identify own areas of interest.

Integration of Career Readiness, Life Literacies and Key Skills

CRP.K-12.CRP1	Act as a responsible and contributing citizen and employee.
CRP.K-12.CRP2	Apply appropriate academic and technical skills.
CRP.K-12.CRP3	Attend to personal health and financial well-being.
CRP.K-12.CRP4	Communicate clearly and effectively and with reason.
CRP.K-12.CRP5	Consider the environmental, social and economic impacts of decisions.

CRP.K-12.CRP6	Demonstrate creativity and innovation.
CRP.K-12.CRP7	Employ valid and reliable research strategies.
CRP.K-12.CRP8	Utilize critical thinking to make sense of problems and persevere in solving them.
CRP.K-12.CRP9	Model integrity, ethical leadership and effective management.
CRP.K-12.CRP10	Plan education and career paths aligned to personal goals.
CRP.K-12.CRP11	Use technology to enhance productivity.
CRP.K-12.CRP12	Work productively in teams while using cultural global competence.

Technology / Integration of Computer Science and Design Thinking

TECH.8.1.5	Educational Technology: All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.
TECH.8.1.5.A	Technology Operations and Concepts: Students demonstrate a sound understanding of technology concepts, systems and operations.
TECH.8.1.5.A.1	Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems.
TECH.8.1.5.A.3	Use a graphic organizer to organize information about problem or issue.
TECH.8.1.5.A.4	Graph data using a spreadsheet, analyze and produce a report that explains the analysis of the data.
TECH.8.2.5	Technology Education, Engineering, Design, and Computational Thinking - Programming: All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment.
TECH.8.2.5.D	Abilities for a Technological World: The designed world is the product of a design process that provides the means to convert resources into products and systems.
TECH.8.2.5.D.1	Identify and collect information about a problem that can be solved by technology, generate ideas to solve the problem, and identify constraints and trade-offs to be considered.
TECH.8.2.5.D.3	Follow step by step directions to assemble a product or solve a problem.
TECH.8.2.5.E	Computational Thinking: Programming: Computational thinking builds and enhances problem solving, allowing students to move beyond using knowledge to creating knowledge.
TECH.8.2.5.E.1	Identify how computer programming impacts our everyday lives.
TECH.8.2.5.E.2	Demonstrate an understanding of how a computer takes input of data, processes and stores the data through a series of commands, and outputs information.
TECH.8.2.5.E.4	Use appropriate terms in conversation (e.g., algorithm, program, debug, loop, events, procedures, memory, storage, processing, software, coding, procedure, and data).

Interdisciplinary Connections: NJSL for ELA, Social Studies, Science and/or Math Section

	Integration of Knowledge and Ideas
LA.K-12.NJLSA.R7	Integrate and evaluate content presented in diverse media and formats, including visually

and quantitatively, as well as in words.

LA.RI.3	Reading Informational Text
LA.RI.3.7	Use information gained from text features (e.g., illustrations, maps, photographs) and the words in a text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur).
LA.K-12.NJSLSA.SL	Speaking and Listening Comprehension and Collaboration
LA.K-12.NJSLSA.SL1	Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.
LA.K-12.NJSLSA.SL2	Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.
LA.SL.3.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher led) with diverse partners on grade 3 topics and texts, building on others' ideas and expressing their own clearly.
LA.SL.3.1.B	Follow agreed-upon norms for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).
LA.SL.3.2	Determine the main ideas and supporting details of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.

Integration of Diversity, Equity and Inclusion; Climate Change; Informational and Media Literacy **New Section**

see Crosswalks

21st Century Life and Careers

Stage I: Desired Results

Transfer/Overview/Rationale

Transfer / Overview / Rationale

Unit Rationale

The purpose of this unit...

21st Century learners know how to represent and interpret data using an online spreadsheet.

Meaning

Essential Questions

Essential Questions

- In a world of constant change, what skills should we learn?
- How can technology be used to solve problems and make informed decisions?
- How can technology be used to develop strategies for solving problems in the real world?

Enduring Understanding/Indicators of Understanding

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- 21st Century learners use a spreadsheet app to solve problems and make informed decisions.
- 21st Century learners use a spreadsheet app to help solve real-world problems.

Acquisition (Student Learning Objectives)

Knowledge

Knowledge

Students will know...

- Spreadsheet software vocabulary (e.g. spreadsheet, cell, row, column, graph, value, formula).
- To interpret spreadsheet results.

Skills

Skills

Student will be skilled at ...

- Recognizing the elements of a spreadsheet.
- Entering text and numbers, moving among cells.
- Inserting data in a data table.
- Creating a data table.
- Creating an appropriate graph from a data table.
- Inserting formulas in a data table.

Stage 3: Learning Plan

Resource and Mentor Texts

Resources and Mentor Texts

- Spreadsheet software (e.g. Microsoft Excel)
- Template files - see attached files for examples/ideas

[School Supplies Budget](#)

[Shopping Budget](#)

[School Survey Project](#)

Formative Assessment Strategies

Formative Assessment Strategies

- Index card summaries/questions
- Hand signals
- Misconception check
- Student conference
- Observation
- Exit cards
- Quiz
- Choral response
- Debriefing
- Think-pair-share
- Ticket to leave
- Turn to your partner
- Oral questioning

Learning Activities/Unit of Study

Learning Activities/Unit of Study

- "Shopping Budget"
 - Students review the basics of recognizing the elements of a spreadsheet, entering text and numbers, and moving among cells.
 - Students watch a working formula operate.
 - Students create the elements of a spreadsheet on their own.

- "School Project"
 - Students expand their knowledge of spreadsheet software, by inputting the results of a survey and designing several graphs.

- "School Supplies"
 - Students insert a formula into a spreadsheet and begin to discover how formulas can greatly increase productivity.

Modifications and/or Accommodations

Suggested Modifications (ELL, Sp. Ed, Gifted, At-risk of Failure)

English Language Learners

Native language support: The teacher provides auditory or written content to students in their native language.

Adjusted Speech: The teacher changes speech patterns to increase student comprehension. This could include facing the students, paraphrasing, clearly indicating the most important ideas, and speaking more slowly.

Visuals: The teacher uses graphics, pictures, visuals, and manipulatives. This helps ELL students better understand and comprehend the subjects at hand.

Front-Loading Vocabulary: The teacher front loads vocabulary. This means providing students with a list of important vocabulary words they will need to know for a book, lesson, etc. prior to the lesson being taught. Including pictures to go with the vocabulary words is also very beneficial for the students.

Special Education Students

Chunking: The teacher presents information in a way that makes it easy for students to understand

and remember. Chunking is based on the presumption that our working memory is easily overloaded by excessive detail. The best way to deliver information is to organize it into meaningful units. Because students with special needs get overloaded easily, chunking is an effective strategy to use with them.

Checking for Understanding: It is important to constantly check for understanding, especially for students who have accommodations. Teachers want to make sure students understand the concepts being covered in a way that makes sense to them.

Extra time: The teacher provides students with special needs extra time to complete work or answer questions. It is important to give students enough time to process their thoughts.

Oral Reading: The teacher will read work orally to students. Class work such as tests and literature circles may need to be read aloud to the student.

Timers: The teacher will use timers as an instructional tool. The use of timers is beneficial for students who have trouble completing tasks. Timers can be helpful so the student is aware of how much time they have to complete an assignment.

Students with 504 Plans

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Gifted & Talented Strategies

Extensions/Enrichments: Teachers will provide gifted and talented students with extension/enrichment projects. Students will be challenged to further their understanding, to apply acquired knowledge, and/or to produce something in reference to acquired knowledge.

Modify/Change Activities: Teachers will monitor and modify activities to accommodate those students who need to be challenged further. Additional reading, problem-solving, writing, or project work is necessary for those students who are ready to move on at a rate more accelerated than their peers. In this way, G & T students are provided the same opportunity for support as special needs students.

Students at Risk of School Failure

Directions or Instructions: Make sure directions and/or instructions are given in limited numbers. Give directions/instructions verbally and in simple written format. Ask students to repeat the instructions or directions to ensure understanding occurs. Check back with the student to ensure he/she hasn't forgotten.

Peer Support: Peers can help build confidence in other students by assisting in peer learning. Many teachers use the 'ask 3 before me' approach. This is fine, however, a student at risk may have to have a specific student or two to ask. Set this up for the student so he/she knows who to ask for clarification before going to you.

Alternate or Modified Assignments: Always ask yourself, "How can I modify this assignment to ensure the students at risk are able to complete it?" Sometimes you'll simplify the task, reduce the length of the assignment or allow for a different mode of delivery. For instance, many students may hand something in, the at-risk student may jot notes and give you the information verbally. Or, it just may be that you will need to assign an alternate assignment.

Increase One to One Time: When other students are working, always touch base with your students at risk and find out if they're on track or needing some additional support. A few minutes here and there will go a long way to intervene as the need presents itself.

Contracts: It helps to have a working contract between you and your students at risk. This helps prioritize the tasks that need to be done and ensure completion happens. Each day write down what needs to be completed, as the tasks are done, provide a checkmark or happy face. The goal of using contracts is to eventually have the student come to you for completion sign-offs.

Hands On: As much as possible, think in concrete terms and provide hands-on tasks. This means a child doing math may require a calculator or counters. The child may need to tape record comprehension activities instead of writing them. A child may have to listen to a story being read instead of reading it him/herself.

Tests/Assessments: Tests can be done orally if need be. Break tests down in smaller increments by having a portion of the test in the morning, another portion after lunch and the final part the next day.

Seating: Seat students near a helping peer or with quick access to the teacher. Those with hearing or sight issues need to be close to the instruction which often means near the front.