



SPRINGFIELD PUBLIC SCHOOLS
ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21st-Century GLOBAL SKILLS

Springfield Public Schools Springfield, New Jersey 07081

Statistical Concepts and Methods

Curriculum Guide

2024

This curriculum may be modified through varying materials, techniques, and strategies per an individual student's IEP.

Springfield Board of Education
Approved on August 26, 2024

Springfield Public Schools

Cultivating compassionate and extraordinary learners!

EXTRACT OF THE MINUTES OF A MEETING OF THE BOARD OF EDUCATION OF THE TOWNSHIP OF SPRINGFIELD COUNTY OF UNION, NEW JERSEY AS RECORDED IN THE OFFICIAL MINUTE BOOK

Resolution: 28

Introduced By: Mrs. Saha

Seconded By: Mrs. Turnbull

Adopted: July 29, 2024

Curriculum Adoption

To approve the following curriculum and courses for the 2024-2025 school year:

a. ELA Courses - Revised to reflect the updated NJSL-ELA standards

- Grades Kindergarten-5 English Language Arts
- Grades 6-8 Communication Arts
- English I
- English II
- English III
- English IV
- DCA Freshman English
- AP English 3 Language and Composition
- AP English 4 Literature and Composition
- Senior Seminar

b. Middle School ELA Elective Courses

- Drama I and II
- Creative Writing
- Journalism-Grade 7

c. High School ELA Elective Courses

- Creative Writing and Poetry
- Drama I
- Film as Literature
- Journalism - High School
- Yearbook
- Tomorrow's Teachers

d. ESL (K-12)

- Elementary ESL
- Middle/High School ESL

e. Middle and High School World Language Curriculum

- French 1
- French 2
- French 3
- French 4
- Spanish 1
- Spanish 2
- Spanish 3
- Spanish 4

f. Florence M Gaudineer Program of Studies

Michelle Calas, School Business Administrator/Board Secretary

(continued)

I, Michelle Calas, School Business Administrator/ Board Secretary of the Springfield Board of Education, hereby certify that the extract from the minutes of a meeting of the Board of Education duly called and held on July 29, 2024 has been compared by me with the original minute book of said Board of Education, and is a true, complete and exact copy thereof, as far as the same relates to the subject matter to on said extract.

In WITNESS THEREOF, I have hereunto set my hand and seal of the Springfield Board of Education, this 30th day of July 2024.

SEAL



Michelle Calas
School Business Administrator/ Board Secretary



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**Springfield Public Schools
Springfield, New Jersey**

**Dr. Rachel Goldberg
Superintendent of Schools**

**Erica Scudero
Assistant Superintendent**

Curriculum Developed By:

Dr. Norman Francis ~ Principal of Jonathan Dayton High School

Gregory Salmon ~ STEM Supervisor

Mary Ellen Powers ~ Math Teacher



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Introduction

This template is the product of an initiative led by the New Jersey Department of Education, Office of Academic Standards, in partnership with the New Jersey Association for Supervision and Curriculum Development (NJASCD) and the New Jersey Principals and Supervisors Association (NJPSA). The project was undertaken with the assistance of New Jersey content area supervisors, curriculum coordinators, and teachers during spring-summer 2009. The goal of the project was to design exemplar unit plans and accompanying lesson plans aligned with the 2009 Core Curriculum Content Standards that may be used by districts as models for the development of local curricula.

The Unit Overview Template, which follows, is a tool that can help districts define one unit plan of several that comprise a specific course in the curriculum for any content area. It is designed, once completed, to summarize the content and objectives for the unit, outline lessons and assessments that support the unit, and provide links to documents that facilitate delivery of the unit, such as student materials, background information, resources, and performance rubrics. To see how the units fit together in the design of a course, see the Curriculum Design Template included at the end of this document.

Seven content area Unit Overviews were created as part of the project to serve as exemplar unit plans that are aligned with the 2009 Core Curriculum Content Standards and that assist in achieving the goal of engaging students, fostering achievement, and cultivating 21st-century global skills. The units stress the integration of 21st-Century themes and skills, global perspectives, technology, and cross-curricular connections.

We encourage districts to use the exemplars in conjunction with the curriculum development tools and templates that emanated from this project as models for teaching and learning based on the 2009 standards.



Unit Overview Template

Content Area: Math **Grade Level:** 12 **Unit Title:** Introduction to Statistics: Collecting and Interpreting Data; Descriptive Statistics; Data & Patterns

Unit Summary: This unit will deal with properly collecting data, then displaying it correctly, and recognizing distortion of graphs.

Primary Interdisciplinary Connections: *Science and Engineering*

21st Century Themes ☒ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☒ ICT Literacy

☐ Information Literacy ☒ Life and Career Skills ☐ Communication and Collaboration ☐ Media Literacy

Unit Rationale: The ability to collect data and correctly display and analyze it is an important tool in today's society.

Career Readiness (Standard 9):

9.1.12.CFR.3: Research companies with corporate governance policies supporting the common good and human rights.

9.4.12.CI.2: Identify career pathways that highlight personal talents, skills, and abilities (e.g., 1.4.12prof.CR2b, 2.2.12.LF.8).

9.4.12.CT.1: Identify problem-solving strategies used in the development of an innovative product or practice (e.g., 1.1.12acc.C1b, 2.2.12.PF.3).

9.4.12.CT.2: Explain the potential benefits of collaborating to enhance critical thinking and problem solving (e.g., 1.3E.12profCR3.a).

Learning Targets

Standards: S.ID; S.IC

Content Statements: Summarize, represent, and interpret data on a single count or measurement variable; Summarize, represent, and interpret data on two categorical and quantitative variables; Understand and evaluate random processes underlying statistical experiments; Make inferences and justify conclusions from sample surveys, experiments, and observational studies.

CPI#:	Cumulative Progress Indicator (CPI):
S.ID.A.1	Represent data with plots on the real number line (dot plots, histograms, and box plots).
S.ID.A.2	Use statistics appropriate to the shape of the data distribution to compare the center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.
S.ID.A.3	Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).
S.ID.A.4	Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages. Recognize that there are data sets for which such a procedure is not appropriate. Use calculators, spreadsheets, and tables to estimate areas under the normal curve.
S.ID.B.5	Summarize categorical data for two categories in two-way frequency tables.



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	Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data.
S.ID.B.6	Represent data on two quantitative variables on a scatter plot, and describe how the variables are related.
S.IC.A.1 (+)	Understand statistics as a process for making inferences about population parameters based on a random sample from that population.
S.IC.A.2 (+)	Decide if a specified model is consistent with results from a given data-generating process, e.g., using simulation. For example, a model says a spinning coin falls heads up with probability 0.5. Would a result of 5 tails in a row cause you to question the model?
S.IC.B.3 (+)	Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.
S.IC.B.4 (+)	Use data from a sample survey to estimate a population mean or proportion; develop a margin of error through the use of simulation models for random sampling.
S.ID.C.8	Compute (using technology) and interpret the correlation coefficient of a linear fit.
SEL.PK-12.2.2	Recognize the skills needed to establish and achieve personal and educational goals.
SEL.PK-12.4.1	Develop, implement and model effective problem-solving, and critical thinking skills.
SEL.PK-12.5.2	Utilize positive communication and social skills to interact effectively with others.
HS-ETS1-3	Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environmental impacts.

Unit Essential Questions:

- How can we collect accurate, unbiased data?
- How can we identify biased data?
- How can we find and use measures of central tendency and spread?
- How can we accurately display data?
- How can we interpret data?
- How can we recognize when data collection has been biased?
- How can we recognize when data has been distorted?

Unit Enduring Understandings:

- Understanding data and statistics is an integral part of mathematics

Unit Learning Targets:

- Students will be able to collect data using unbiased samples.
- Students will be able to identify bias used in sampling
- Students will be able to compute measures of central tendency and spread.
- Students will be able to summarize a set of data numerically and visually.
- Students will be able to create and interpret graphs that display and compare data.



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- Students will be able to determine which types of graphs are appropriate for representing various types of data.
- Students will be able to recognize the way graphs distort information.
- Climate Change Example: Students may represent geoscience data with plots on the real number line as they analyze results from global climate models.
- Climate Change Example: Students may represent geoscience data on two quantitative variables on a scatter plot and describe how the variables are related in order to analyze the data and the results from global climate models.



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Evidence of Learning

Summative Assessment: Chapter Test (with differentiated levels)

Equipment Needed: Graphing calculators, iPads or laptops, Google Sheets, graph paper

Teacher Resources: Projector or smartboard, laptop

Formative Assessments:

- Homework check
- Lesson opener or daily quiz
- Guided practice exercises
- Closure discussion



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Lesson Plans

Lesson	Time Frame
Lesson 1 Introduction to Statistical and Critical Thinking	1 day
Lesson 2 Types of Data	1 day
Lesson 3 Collecting Sample Data	1 day

Teacher Notes:

Double-check Google Sheets data to avoid inconsistencies.

Curriculum Development Resources/Technology Resources:

Click the links below to access additional resources used to design this unit:

<https://www.codecademy.com/learn/discrete-math>

<https://tasks.illustrativemathematics.org/content-standards>

<https://desmos.com>



Lesson Plan 1 Template

Content Area: Math Lesson Title: Introduction to Statistics Time Frame: 1 day

Lesson Components

21st Century Themes

- ☒ Global Awareness ☒ Financial, Economic, Business and Entrepreneurial Literacy
☒ Civic Literacy ☒ Health Literacy

21st Century Skills

- ☒ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☐ Information Literacy
☒ Life and Career Skills ☒ Communication and Collaboration ☐ Media Literacy ☐ ICT Literacy

Interdisciplinary Connections:

Science and Engineering

Integration of Technology:

Graphing calculators, Google Sheets, Google Docs, Desmos

Equipment Needed:

Graphing calculators, iPads or laptops

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Examine statistical and critical thinking - Consider context, source, and methods of sampling data - Examine ethics in sampling - Examine bias in sampling techniques	Lesson Sequence - Homework Check/Review - Break students into groups of three. Ask students to discuss what types of data. - Ask groups to consider how data is collected. - Give guided practice facilitated exercises. - Closure discussion.	- Homework review - Lesson opener or daily quiz - Guided practice facilitated exercises - Closure discussion
Differentiation: Audio and visual instruction; sample Google Sheets files		
Resources Provided: Example samples		



Lesson Plan 2 Template

Content Area: Math Lesson Title: Types of Data Time Frame: 1 day

Lesson Components

21st Century Themes

- ☒ Global Awareness ☒ Financial, Economic, Business and Entrepreneurial Literacy
☒ Civic Literacy ☐ Health Literacy

21st Century Skills

- ☐ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☐ Information Literacy
☒ Life and Career Skills ☒ Communication and Collaboration ☒ Media Literacy ☐ ICT Literacy

Interdisciplinary Connections:

Science and Engineering

Integration of Technology:

Graphing calculators, Google Sheets, Google Docs, Desmos

Equipment Needed:

Graphing calculator, iPads or laptops

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Examine types of data - Examine frequency, rank, and score - Examine random sampling techniques - Collect data using random sampling techniques	Lesson Sequence - Homework Check/Review - Break students into groups of three. Ask students to discuss what makes a sample unbiased. - Ask for volunteers to share responses. Then, give each group a series of examples to determine if each sample is unbiased. - Work through examples collecting data using random sampling techniques. Give guided practice facilitated exercises. - Closure discussion.	- Homework review - Lesson opener or daily quiz - Guided practice facilitated exercises - Closure discussion



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Differentiation:

Break down the formulas on Google Sheets.

Resources Provided:

- Textbook
- Dataset



Lesson Plan 3 Template

Content Area: Math Lesson Title: Collecting Sample Data Time Frame: 1 day

Lesson Components

21st Century Themes

- ☒ Global Awareness ☒ Financial, Economic, Business and Entrepreneurial Literacy
☒ Civic Literacy ☐ Health Literacy

21st Century Skills

- ☒ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☐ Information Literacy
☒ Life and Career Skills ☒ Communication and Collaboration ☒ Media Literacy ☐ ICT Literacy

Interdisciplinary Connections:

Science and Engineering

Integration of Technology:

Graphing calculators, Google Sheets, Google Docs, Desmos

Equipment Needed:

Graphing calculator, iPads or laptops

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Distinguish between parameters and statistics - Define random samples - Examine random sampling techniques - Examine experiment design	Lesson Sequence - Homework check/review. - Ask students to examine parameters and statistics. - Give guided practice facilitated exercises. - Closure discussion.	- Homework review - Lesson opener or daily quiz - Guided practice facilitated exercises - Closure discussion
Differentiation: Audio and visual instruction, sample Google Sheets files		
Resources Provided: - iPads or laptops with Google Sheets - Datasets		



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Lesson Reflection

Reflect on the lesson you have developed and rate the degree to which the lesson *Strongly*, *Moderately* or *Weakly* meets the criteria below.

Lesson Activities	Strongly	Moderately	Weakly
Are challenging Strongly and require higher order thinking and problem solving skills	☒	☐	☐
Allow for student choice	☒	☐	☐
Provide scaffolding for acquiring targeted knowledge/skills	☐	☒	☐
Integrate global perspectives	☒	☐	☐
Integrate 21st century skills	☒	☐	☐
Provide opportunities for interdisciplinary connection and transfer of knowledge and skills	☒	☐	☐
Foster student use of technology as a tool to develop critical thinking, creativity and innovation skills	☒	☐	☐
Are varied to address different student learning styles and preferences	☐	☒	☐
Are differentiated based on student needs	☐	☒	☐
Are student-centered with teacher acting as a facilitator and co-learner during the teaching and learning process	☒	☐	☐
Provide means for students to demonstrate knowledge and skills and progress in meeting learning goals and objectives	☒	☐	☐
Provide opportunities for student reflection and self- assessment	☐	☒	☐
Provide data to inform and adjust instruction to better meet the varying needs of learners	☐	☒	☐

Curriculum Design Template

Content Area: Math **Grade Level:** 12 **Unit Title:** Introduction to Statistics:
Collecting and Interpreting Data; Descriptive Statistics; Data & Patterns

Created: 2024

Board Approved on:



Unit Overview Template

Content Area: Math **Grade Level:** 12 **Unit Title:** Probability and Inferential Statistics

Unit Summary: This unit focuses on important characteristics of data. It examines and explores important tools used to organize data in order to gain insight into what is revealed by the data collected.

Primary Interdisciplinary Connections: *Science and Engineering*

21st Century Themes ☒ Creativity and Innovation ☐ Critical Thinking and Problem Solving ☐ ICT Literacy
☐ Information Literacy ☒ Life and Career Skills ☒ Communication and Collaboration ☐ Media Literacy

Unit Rationale: When working with large quantities of data organization helps to reveal the nature of the data.

Career Readiness (Standard 9):

9.1.12.CFR.3: Research companies with corporate governance policies supporting the common good and human rights.

9.4.12.CI.2: Identify career pathways that highlight personal talents, skills, and abilities (e.g., 1.4.12prof.CR2b, 2.2.12.LF.8).

9.4.12.CT.1: Identify problem-solving strategies used in the development of an innovative product or practice (e.g., 1.1.12acc.C1b, 2.2.12.PF.3).

9.4.12.CT.2: Explain the potential benefits of collaborating to enhance critical thinking and problem solving (e.g., 1.3E.12profCR3.a).

Learning Targets

Standards: S.ID; S.IC; S.CP

Content Statements: Summarize, represent, and interpret data on a single count or measurement variable; Understand and evaluate random processes underlying statistical experiments; Understand independence and conditional probability and use them to interpret data; Use the rules of probability to compute probabilities of compound events in a uniform probability model.

CPI#:	Cumulative Progress Indicator (CPI):
S.ID.A.4	Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages. Recognize that there are data sets for which such a procedure is not appropriate. Use calculators, spreadsheets, and tables to estimate areas under the normal curve.
S.IC.A.2 (+)	Decide if a specified model is consistent with results from a given data-generating process, e.g., using simulation. For example, a model says a spinning coin falls heads up with probability 0.5. Would a result of 5 tails in a row cause you to question the model?
S.CP.A.1 (+)	Describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events (“or,” “and,” “not”).



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S.CP.A.2 (+)	Understand that two events A and B are independent if the probability of A and B occurring together is the product of their probabilities, and use this characterization to determine if they are independent.
S.CP.A.3 (+)	Understand the conditional probability of A given B as $\frac{P(A \text{ and } B)}{P(B)}$, and interpret independence of A and B as saying that the conditional probability of A given B is the same as the probability of A , and the conditional probability of B given A is the same as the probability of B .
S.CP.A.4 (+)	Construct and interpret two-way frequency tables of data when two categories are associated with each object being classified. Use the two-way table as a sample space to decide if events are independent and to approximate conditional probabilities. For example, collect data from a random sample of students in your school on their favorite subject among math, science, and English. Estimate the probability that a randomly selected student from your school will favor science given that the student is in tenth grade. Do the same for other subjects and compare the results.
S.CP.A.5 (+)	Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations. For example, compare the chance of having lung cancer if you are a smoker with the chance of being a smoker if you have lung cancer.
S.CP.B.6 (+)	Find the conditional probability of A given B as the fraction of B 's outcomes that also belong to A , and interpret the answer in terms of the model.
S.CP.B.7 (+)	Apply the Addition Rule, $P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$, and interpret the answer in terms of the model.
S.CP.B.8 (+)	Apply the general Multiplication Rule in a uniform probability model, $P(A \text{ and } B) = P(A)P(B A) = P(B)P(A B)$, and interpret the answer in terms of the model.
S.CP.B.9 (+)	Use permutations and combinations to compute probabilities of compound events and solve problems.
SEL.PK-12.2.2	Recognize the skills needed to establish and achieve personal and educational goals.
SEL.PK-12.4.1	Develop, implement and model effective problem-solving, and critical thinking skills.
SEL.PK-12.5.2	Utilize positive communication and social skills to interact effectively with others.
HS-ETS1-3	Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environmental impacts.

Unit Essential Questions:

- How can we use expected values?
- How can we use normal distributions to find percentages of data?
- How can we use normal distributions to find confidence intervals and margins of error?



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Unit Enduring Understandings:

- Understanding data relies on organizing and examining results
- Understanding data and statistics is an integral part of mathematics

Unit Learning Targets:

- Students will be able to organize and summarize data.
- Students will be able to compute frequency distributions.
- Students will be able to present data in an appropriate form.
- Students will be able to distinguish between data presentations that are enlightening and those that are deceptive.



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Evidence of Learning

Summative Assessment: Chapter Test (with differentiated levels)

Equipment Needed: Graphing calculator, iPads or laptops, Google Sheets, graph paper

Teacher Resources: Projector or smartboard, laptop

Formative Assessments:

- Homework check
- Lesson opener or daily quiz
- Guided practice exercises
- Closure discussion



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Lesson Plans

Lesson	Time Frame
Lesson 1 Frequency Distributions	1 day
Lesson 2 Presentation of Data	1 day
Lesson 3 Enlightening vs Deceptive Graphs	1 day

Teacher Notes:

Double-check Google Sheets data to avoid inconsistencies.

Curriculum Development Resources/Technology Resources:

Click the links below to access additional resources used to design this unit:

<https://www.codecademy.com/learn/discrete-math>

<https://tasks.illustrativemathematics.org/content-standards>

<https://www.khanacademy.org/math/statistics-probability>

<https://desmos.com>



Lesson Plan 1 Template

Content Area: Math Lesson Title: Frequency Distributions Time Frame: 1 day

Lesson Components

21st Century Themes

- ☒ Global Awareness ☒ Financial, Economic, Business and Entrepreneurial Literacy
☒ Civic Literacy ☐ Health Literacy

21st Century Skills

- ☒ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☐ Information Literacy
☒ Life and Career Skills ☒ Communication and Collaboration ☒ Media Literacy ☐ ICT Literacy

Interdisciplinary Connections:

Science and Engineering

Integration of Technology:

Graphing calculators, Google Sheets, Google Docs, Desmos

Equipment Needed:

Graphing calculator, iPads or laptops

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Examine frequency distributions. - Construct frequency distributions - Examine normal distributions - Identify outliers and interpret the effects of outliers	Lesson Sequence - Homework check/review. - Examine frequency distributions. - Show students how to organize and sort data. - Show students how to construct a frequency distribution. - Give guided practice facilitated exercises with sample data. - Closure discussion.	- Homework review - Lesson opener or daily quiz - Guided practice exercises - Closure discussion
Differentiation: Audio and visual instruction: the choice of making probability trees to compute the probabilities		
Resources Provided: - Textbook - Datasets		



Lesson Plan 2 Template

Content Area: Math Lesson Title: Presentation of Data Time Frame: 1 day

Lesson Components

21st Century Themes

- ☒ Global Awareness ☒ Financial, Economic, Business and Entrepreneurial Literacy
☐ Civic Literacy ☒ Health Literacy

21st Century Skills

- ☒ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☐ Information Literacy
☒ Life and Career Skills ☒ Communication and Collaboration ☐ Media Literacy ☐ ICT Literacy

Interdisciplinary Connections:

Science and Engineering

Integration of Technology:

Graphing calculators, Google Sheets, Google Docs, Desmos

Equipment Needed:

Graphing calculator, iPads or laptops

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Examine histograms and relative frequency histograms - Examine common distribution shapes - Interpret data from histograms and graphs - Understand and identify skewness	Lesson Sequence - Homework check/review - Pair students to work on examining histograms - Give guided practice exercises. - Closure discussion - what do histograms reveal about data?	- Homework review - Lesson opener or daily quiz - Guided practice exercises - Closure discussion
Differentiation: Audio and visual instruction		
Resources Provided: - Textbook - Dataset - Desmos activity		



Lesson Plan 3 Template

Content Area: Math Lesson Title: Enlightening vs Deceptive Graphs Time Frame: 1 day

Lesson Components

21st Century Themes

- ☐ Global Awareness ☒ Financial, Economic, Business and Entrepreneurial Literacy
☒ Civic Literacy ☒ Health Literacy

21st Century Skills

- ☒ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☐ Information Literacy
☒ Life and Career Skills ☒ Communication and Collaboration ☒ Media Literacy ☐ ICT Literacy

Interdisciplinary Connections:

Science and Engineering

Integration of Technology:

Graphing calculators, Google Sheets, Google Docs, Desmos

Equipment Needed:

Graphing calculator, iPads or laptops

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Examine data presented in dot plots, line graphs, bar graphs, pie charts, scatter plots, and stemplots. - Organize data in graph form - Identify true representations of data - Identify distorted representations of data	Lesson Sequence - Homework check/review - Ask students to discuss what is revealed by sample graphs. - Have student pairs examine sample graphs to find any distorted representations. - Give guided practice exercises. - Closure discussion.	- Homework review - Lesson opener or daily quiz - Guided practice exercises - Closure discussion
Differentiation: Audio and visual instruction		
Resources Provided: - Textbook - Datasets		



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Lesson Reflection

Reflect on the lesson you have developed and rate the degree to which the lesson *Strongly*, *Moderately* or *Weakly* meets the criteria below.

Lesson Activities	Strongly	Moderately	Weakly
Are challenging Strongly and require higher order thinking and problem solving skills	☒	☐	☐
Allow for student choice	☒	☐	☐
Provide scaffolding for acquiring targeted knowledge/skills	☒	☐	☐
Integrate global perspectives	☐	☒	☐
Integrate 21st century skills	☒	☐	☐
Provide opportunities for interdisciplinary connection and transfer of knowledge and skills	☒	☐	☐
Foster student use of technology as a tool to develop critical thinking, creativity and innovation skills	☒	☐	☐
Are varied to address different student learning styles and preferences	☐	☒	☐
Are differentiated based on student needs	☐	☒	☐
Are student-centered with teacher acting as a facilitator and co-learner during the teaching and learning process	☐	☒	☐
Provide means for students to demonstrate knowledge and skills and progress in meeting learning goals and objectives	☒	☐	☐
Provide opportunities for student reflection and self- assessment	☒	☐	☐
Provide data to inform and adjust instruction to better meet the varying needs of learners	☐	☒	☐

Curriculum Design Template

Content Area: Math Statistics	Grade Level: 12	Unit Title: Probability and Inferential
Created: 2024	Board Approved on:	



Unit Overview Template

Content Area: Math **Grade Level:** 12 **Unit Title:** Exploring and Comparing Data

Unit Summary: This unit emphasizes exploring data to develop a practical sense of what the data represents through critical thinking. Students will be able to summarize and describe the data's relevant characteristics.

Primary Interdisciplinary Connections: *Science and Engineering*

21st Century Themes ☒ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☐ ICT Literacy
☐ Information Literacy ☒ Life and Career Skills ☒ Communication and Collaboration ☐ Media Literacy

Unit Rationale: The ability to recognize and analyze networks are important tools in today's society for finding efficiencies in systems.

Career Readiness (Standard 9):

- 9.1.12.CFR.3: Research companies with corporate governance policies supporting the common good and human rights.
- 9.4.12.CI.2: Identify career pathways that highlight personal talents, skills, and abilities (e.g., 1.4.12prof.CR2b, 2.2.12.LF.8).
- 9.4.12.CT.1: Identify problem-solving strategies used in the development of an innovative product or practice (e.g., 1.1.12acc.C1b, 2.2.12.PF.3).
- 9.4.12.CT.2: Explain the potential benefits of collaborating to enhance critical thinking and problem solving (e.g., 1.3E.12profCR3.a).

Learning Targets

Standards: S.IC

Content Statements: Make inferences and justify conclusions from sample surveys, experiments, and observational studies.

CPI#:	Cumulative Progress Indicator (CPI):
S.IC.B.3 (+)	Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.
SEL.PK-12.2.2	Recognize the skills needed to establish and achieve personal and educational goals.
SEL.PK-12.4.1	Develop, implement and model effective problem-solving, and critical thinking skills.
SEL.PK-12.5.2	Utilize positive communication and social skills to interact effectively with others.
HS-ETS1-3	Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environmental impacts.

Unit Essential Questions:

- What are measures of central tendency?



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- Which measure best represents the data?
- What, if any, effect do outliers have on measures of central tendency?

Unit Enduring Understandings:

- Understanding measures of central tendency is an integral part of mathematics

Unit Learning Targets:

- Students will be able to compute measures of central tendency using a graphing calculator.
- Students will be able to compute measures of central tendency using Google Sheets.
- Students will be able to identify the effect of an outlier on the mean and median.
- Students will be able to compute the standard deviation.
- Students will understand boxplots.



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Evidence of Learning

Summative Assessment: Chapter Test (with differentiated levels),

Equipment Needed: Graphing calculator, iPads or laptops, Google Sheets, graph paper

Teacher Resources: Projector or smartboard, laptop

Formative Assessments:

- Homework check
- Lesson opener or daily quiz
- Guided practice exercises
- Closure discussion



Lesson Plans

Lesson	Time Frame
Lesson 1 Measures of Central Tendency	1 day
Lesson 2 Measures of Variation	1 day
Lesson 3 Measures of Relative Standing and Box Plots	1 day

Teacher Notes:

Double-check Google Sheets data to avoid inconsistencies.

Curriculum Development Resources/Technology Resources:

Click the links below to access additional resources used to design this unit:

<https://www.codecademy.com/learn/discrete-math>

<https://tasks.illustrativemathematics.org/content-standards>

<https://desmos.com>



Lesson Plan 1 Template

Content Area: Math Lesson Title: Measures of Central Tendency Time Frame: 1 day

Lesson Components

21st Century Themes

- ☒ Global Awareness ☐ Financial, Economic, Business and Entrepreneurial Literacy
☒ Civic Literacy ☒ Health Literacy

21st Century Skills

- ☐ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☒ Information Literacy
☐ Life and Career Skills ☒ Communication and Collaboration ☐ Media Literacy ☐ ICT Literacy

Interdisciplinary Connections:

Science and Engineering

Integration of Technology:

Graphing calculators, Google Sheets, Google Docs, Desmos

Equipment Needed:

Graphing calculator, iPads or laptops

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Examine the measure of center - Computing mean, median, mode, and midrange - Examine the effect of outliers on computation and results	Lesson Sequence - Homework check/review - Lesson opener - Have student pairs compute measures of central tendency and decide what is used to describe the data. - Guided Practice - - Closure discussion.	- Homework review - Lesson opener - Guided practice exercises - Closure discussion
Differentiation: Audio and visual instruction; different number of vertices for different types of graphs		
Resources Provided: - Calculators - Textbook		



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Lesson Plan 2 Template

Content Area: Math Lesson Title: Measures of Variation Time Frame: 1 day

Lesson Components

21st Century Themes

- ☒ Global Awareness ☒ Financial, Economic, Business and Entrepreneurial Literacy
☐ Civic Literacy ☒ Health Literacy

21st Century Skills

- ☒ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☐ Information Literacy
☒ Life and Career Skills ☒ Communication and Collaboration ☐ Media Literacy ☐ ICT Literacy

Interdisciplinary Connections:

Science and Engineering

Integration of Technology:

Graphing calculators, Google Sheets, Google Docs, Desmos

Equipment Needed:

Graphing calculator, iPads or laptops

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Examine the concepts of variation - Examine the effects of reducing variation - Compute standard variation with calculators - Compute standard variation with Google Sheets	Lesson Sequence - Homework check/review. - Lesson opener - Show and discuss examples of variation - Show students how to calculate standard variation with calculators and with Google Sheets - Provide students with sample data to compute variation - Closure discussion.	- Homework review - Lesson opener or daily quiz - Guided practice exercises - Closure discussion
Differentiation: Audio and visual instruction; finding spanning trees - pencils, highlighters, on whiteboard or worksheets		
Resources Provided: - Textbook, iPads or laptops - Worksheets - Muddy City and other examples		



Lesson Plan 3 Template

Content Area: Math Lesson Title: Measures of Relative Standing and Box Plots
 Time Frame: 1 day

Lesson Components

21st Century Themes

- ☒ Global Awareness ☒ Financial, Economic, Business and Entrepreneurial Literacy
☒ Civic Literacy ☒ Health Literacy

21st Century Skills

- ☒ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☒ Information Literacy
☒ Life and Career Skills ☒ Communication and Collaboration ☐ Media Literacy ☐ ICT Literacy

Interdisciplinary Connections:

Science and Engineering

Integration of Technology:

Graphing calculators, Google Sheets, Google Docs, Desmos

Equipment Needed:

Graphing calculator, iPads or laptops

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Examine z-scores, percentiles and quartiles - Examine boxplots	Lesson Sequence - Homework check/review - Lesson opener activity - Discuss and examine z-scores, percentiles and quartiles - Show students how to create boxplots - Guided practice exercises - Closure discussion.	- Homework review - Lesson opener or daily quiz - Guided practice exercises - Closure discussion
Differentiation: Audio and visual instruction; different size graphs to find chromatic number		
Resources Provided: - Textbook - Lesson opener activity		



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Lesson Reflection

Reflect on the lesson you have developed and rate the degree to which the lesson *Strongly*, *Moderately* or *Weakly* meets the criteria below.

Lesson Activities	Strongly	Moderately	Weakly
Are challenging Strongly and require higher order thinking and problem solving skills	☒	☐	☐
Allow for student choice	☒	☐	☐
Provide scaffolding for acquiring targeted knowledge/skills	☒	☐	☐
Integrate global perspectives	☐	☒	☐
Integrate 21st century skills	☒	☐	☐
Provide opportunities for interdisciplinary connection and transfer of knowledge and skills	☒	☐	☐
Foster student use of technology as a tool to develop critical thinking, creativity and innovation skills	☐	☐	☐
Are varied to address different student learning styles and preferences	☒	☐	☐
Are differentiated based on student needs	☒	☐	☐
Are student-centered with teacher acting as a facilitator and co-learner during the teaching and learning process	☐	☒	☐
Provide means for students to demonstrate knowledge and skills and progress in meeting learning goals and objectives	☒	☐	☐
Provide opportunities for student reflection and self- assessment	☐	☒	☐
Provide data to inform and adjust instruction to better meet the varying needs of learners	☐	☒	☐

Curriculum Design Template

Content Area: Math	Grade Level: 12	Unit Title: Exploring and Comparing Data
Created: 2024	Board Approved on:	



Unit Overview Template

Content Area: Math **Grade Level:** 12 **Unit Title:** Probability

Unit Summary: This unit includes four different common voting methods that are generally used for common elections. The voting methods are Plurality, Borda Count, Plurality with Elimination, and Pairwise comparison. Students will learn how to apply all four methods and then practice using them all to calculate the winners of several election examples. This chapter also includes the flaws of voting and how different candidates can win based on the voting method used. Students will learn to identify the flow in each of the four types of methods learned. Finally, this unit also focuses on methods of fair division. Students will learn and practice using methods that will divide things of monetary or sentimental value and how to make fair division "envy-free."

Primary Interdisciplinary Connections: *Science and Engineering*

21st Century Themes ☒ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☐ ICT Literacy
☐ Information Literacy ☒ Life and Career Skills ☒ Communication and Collaboration ☐ Media Literacy

Unit Rationale: The ability to recognize and analyze networks are important tools in today's society to understand voting methods and how they relate to our voting system.

Career Readiness (Standard 9):

9.1.12.CFR.3: Research companies with corporate governance policies supporting the common good and human rights.

9.4.12.CI.2: Identify career pathways that highlight personal talents, skills, and abilities (e.g., 1.4.12prof.CR2b, 2.2.12.LF.8).

9.4.12.CT.1: Identify problem-solving strategies used in the development of an innovative product or practice (e.g., 1.1.12acc.C1b, 2.2.12.PF.3).

9.4.12.CT.2: Explain the potential benefits of collaborating to enhance critical thinking and problem solving (e.g., 1.3E.12profCR3.a).

Learning Targets

Standards: N.VM; S.IC

Content Statements: Perform operations on matrices and use matrices in applications; Understand and evaluate random processes underlying statistical experiments; Make inferences and justify conclusions from sample surveys, experiments, and observational studies.

CPI#:	Cumulative Progress Indicator (CPI):
N.VM.C.6	Use matrices to represent and manipulate data, e.g., to represent payoffs or incidence relationships in a network.
S.IC.A.2 (+)	Decide if a specified model is consistent with results from a given data-generating process, e.g., using simulation. For example, a model says a spinning coin falls heads up with probability 0.5. Would a result of 5 tails in a row cause you to question the model?
S.IC.B.3 (+)	Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.
S.IC.B.4 (+)	Use data from a sample survey to estimate a population mean or proportion;



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	develop a margin of error through the use of simulation models for random sampling.
S.IC.B.5 (+)	Use data from a randomized experiment to compare two treatments; use simulations to decide if differences between parameters are significant.
S.IC.B.6 (+)	Evaluate reports based on data.
SEL.PK-12.2.2	Recognize the skills needed to establish and achieve personal and educational goals.
SEL.PK-12.4.1	Develop, implement and model effective problem-solving, and critical thinking skills.
SEL.PK-12.5.2	Utilize positive communication and social skills to interact effectively with others.
HS-ETS1-3	Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environmental impacts.

Unit Essential Questions:

- How can we use more than one method for voting in elections?
- How can we determine the fairness of each voting method?
- How can we fairly divide monetary or sentimental value among a group of interested people?
- How can we make fair divisions "envy-free"?

Unit Enduring Understandings:

- Understanding voting methods is an integral part of mathematics
- Understanding fair division is an integral part of mathematics

Unit Learning Targets:

- Students will be able to use some common ways in which winners of elections and other selection processes are determined.
- Students will be able to understand how the selection process may have flaws that can lead to unusual and unexpected results or can be manipulated to gain an advantage.
- Students will be able to understand how selection processes may or may not satisfy commonly accepted fairness and properties.
- Students will be able to determine winning and losing voting coalitions.
- Students will be able to use methods of central tendency
- Students will be able to compute the standard deviation



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Evidence of Learning

Summative Assessment: Chapter Test (with differentiated levels)

Equipment Needed: Graphing calculator, iPads or laptops, Google Sheets, graph paper

Teacher Resources: Projector or smartboard, laptop

Formative Assessments:

- Homework check
- Lesson opener or daily quiz
- Guided practice exercises
- Closure discussion



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Lesson Plans

Lesson	Time Frame
Lesson 1 Concepts of Probability	1 day
Lesson 2 Addition Rule and Multiplication Rule Events	1 day
Lesson 3 Counting Principles	1 day

Teacher Notes:

Double-check Google Sheets data to avoid inconsistencies.

Curriculum Development Resources/Technology Resources:

Click the links below to access additional resources used to design this unit:

<https://www.codecademy.com/learn/discrete-math>

<https://tasks.illustrativemathematics.org/content-standards>

<https://desmos.com>



Lesson Plan 1 Template

Content Area: Math Lesson Title: Addition Rule and Multiplication Rule Time Frame: 1 day

Lesson Components

21st Century Themes

- ☒ Global Awareness ☒ Financial, Economic, Business and Entrepreneurial Literacy
☒ Civic Literacy ☒ Health Literacy

21st Century Skills

- ☒ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☒ Information Literacy
☐ Life and Career Skills ☒ Communication and Collaboration ☐ Media Literacy ☐ ICT Literacy

Interdisciplinary Connections:

Science and Engineering

Integration of Technology:

Graphing calculators, Google Sheets, Google Docs, Desmos

Equipment Needed:

Graphing calculator, iPads or laptops

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Examine the purpose of probability in statistics - Examine probability as a value between zero and one - Calculate the probability of events - Examine the complement of an event	Lesson Sequence - Homework Check/Review - Have students determine the probability of sample events - Have students volunteer solutions and reasons - Guided Practice - Closure Activity	- Homework review - Lesson opener - Guided practice exercises - Closure discussion
Differentiation: Audio and visual instruction		
Resources Provided: Textbook		



Lesson Plan 2 Template

Content Area: Math Lesson Title: Continuous Fair Division Time Frame: 1 day

Lesson Components

21st Century Themes

- ☒ Global Awareness ☒ Financial, Economic, Business and Entrepreneurial Literacy
☐ Civic Literacy ☒ Health Literacy

21st Century Skills

- ☒ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☐ Information Literacy
☒ Life and Career Skills ☒ Communication and Collaboration ☐ Media Literacy ☐ ICT Literacy

Interdisciplinary Connections:

Science and Engineering

Integration of Technology:

Graphing calculators, Google Sheets, Google Docs, Desmos, Google Slides

Equipment Needed:

Graphing calculator, iPads or laptops

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Examine the Addition Rule of Probability - Examine the Multiplication Rule of Probability - Examine how the rules apply to multiple-state experiments	Lesson Sequence - Homework check/review. - Lesson opener - - Introduce Addition and Multiplication Rules of Probability - Have student pairs decide which rule applies to samples - Guided Practice. - Closure discussion.	- Homework review - Lesson opener or daily quiz - Guided practice exercises - Closure discussion
Differentiation: Audio and visual instruction, differentiated examples of fair division		
Resources Provided: Textbook		



Lesson Plan 3 Template

Content Area: Math Lesson Title: Counting Principles Time Frame: 1 day

Lesson Components

21st Century Themes

- ☒ Global Awareness ☒ Financial, Economic, Business and Entrepreneurial Literacy
☒ Civic Literacy ☒ Health Literacy

21st Century Skills

- ☒ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☒ Information Literacy
☒ Life and Career Skills ☒ Communication and Collaboration ☐ Media Literacy ☐ ICT Literacy

Interdisciplinary Connections:

Science and Engineering

Integration of Technology:

Graphing calculators, Google Sheets, Google Docs, Desmos

Equipment Needed:

Graphing calculator, iPads or laptops

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Examine counting and its application to statistics - Examine combinations - Examine permutations	Lesson Sequence - Homework check/review. - Ask students to work in groups to examine samples and determine which method should be used. - Complete a Desmos activity - Guided practice exercises Closure discussion.	- Homework review - Lesson opener or daily quiz - Guided practice exercises - Closure discussion
Differentiation: Audio and visual instruction; differentiated scenarios on Desmos		
Resources Provided: Desmos activity		



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Lesson Reflection

Reflect on the lesson you have developed and rate the degree to which the lesson *Strongly*, *Moderately* or *Weakly* meets the criteria below.

Lesson Activities	Strongly	Moderately	Weakly
Are challenging Strongly and require higher order thinking and problem solving skills	☒	☐	☐
Allow for student choice	☒	☐	☐
Provide scaffolding for acquiring targeted knowledge/skills	☒	☐	☐
Integrate global perspectives	☐	☒	☐
Integrate 21st century skills	☒	☐	☐
Provide opportunities for interdisciplinary connection and transfer of knowledge and skills	☒	☐	☐
Foster student use of technology as a tool to develop critical thinking, creativity and innovation skills	☐	☒	☐
Are varied to address different student learning styles and preferences	☐	☒	☐
Are differentiated based on student needs	☒	☐	☐
Are student-centered with teacher acting as a facilitator and co-learner during the teaching and learning process	☐	☒	☐
Provide means for students to demonstrate knowledge and skills and progress in meeting learning goals and objectives	☒	☐	☐
Provide opportunities for student reflection and self- assessment	☐	☒	☐
Provide data to inform and adjust instruction to better meet the varying needs of learners	☐	☐	☐

Curriculum Design Template

Content Area: Math	Grade Level: 12	Unit Title: Probability
Created: 2024	Board Approved on:	



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GLOBAL SKILLS

IEP AND 504 ACCOMMODATIONS AND MODIFICATIONS FOR EARLY CHILDHOOD AND ELEMENTARY SCHOOL STUDENTS:

Large print textbooks
Textbooks for at-home use
Additional time for assignments
Review of directions
Use of mnemonics
Have student restate information
Concrete examples
Adaptive writing utensils
Support auditory presentations with visuals
Use of a study carrel
Assistance in maintaining uncluttered space
Weekly home-school communication tools (notebook, daily log, phone calls or email messages)
Space for movement or breaks
Study sheets and teacher outlines
Extra visual and verbal cues and prompts
Math sheets with highlighted instructions
Graph paper to assist in organizing or lining up math problems
Use of computers and calculators
Books on tape
Graphic organizers
Quiet corner or room to calm down and relax when anxious
Preferential seating
Alteration of the classroom arrangement
Reduction of distractions
Answers to be dictated
Hands-on activities
Use of manipulatives
No penalty for spelling errors or sloppy handwriting
Follow a routine/schedule
Alternate quiet and active time
Teach time management skills
Rest breaks
Verbal and visual cues regarding directions and staying on task
Agenda book and checklists
Adjusted assignment timelines
Visual daily schedule



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GLOBAL SKILLS**

Varied reinforcement procedures
Immediate feedback
Work-in-progress check
Personalized examples

TESTING AND ASSESSMENT ACCOMMODATIONS AND MODIFICATIONS:

Answers to be dictated
Frequent rest breaks
Additional time
Oral testing
Untimed tests
Choice of test format (multiple-choice, essay, true-false)
Alternate ways to evaluate (projects or oral presentations instead of written tests)
Accept short answers
Open-book tests
Read test and directions to student
Provide study outline prior to tests
Highlight key directions
Test in alternative site
Use of calculator
Extra credit option
Preview test procedures
Simplified test wording; rephrased test questions and/or directions

GENERAL ACCOMMODATIONS AND MODIFICATIONS:

Use of alternative books or materials on the topic being studied
Computerized spell-check support
Word bank of choices for answers to test questions
Provision of calculator and/or number line for math tests
Reworded questions in simpler language
Projects instead of written reports
Highlighting important words or phrases in reading assignments
Modified workload or length of assignments/tests
Modified time demands
Modified grades based on IEP

BEHAVIOR ACCOMMODATIONS MODIFICATIONS:



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GLOBAL SKILLS**

Breaks between tasks
Cue expected behavior
Daily feedback to student
Have contingency plans
Use de-escalating strategies
Use positive reinforcement
Use proximity/touch control
Use peer supports and mentoring
Model expected behavior by adults
Have parent sign homework
Have parent sign behavior chart
Set and post class rules
Chart progress and maintain data



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GLOBAL SKILLS

IEP AND 504 ACCOMODATIONS AND MODIFICATIONS FOR MIDDLE AND HIGH SCHOOL STUDENTS:

Large print textbooks
Textbooks for at-home use
Additional time for assignments
A locker with adapted lock
Review of directions
Review sessions
Use of mnemonics
Have student restate information
Provision of notes or outlines
Concrete examples
Adaptive writing utensils
Support auditory presentations with visuals
Weekly or bi-weekly home-school communication
Space for movement or breaks
Study sheets and teacher outlines
Extra visual and verbal cues and prompts
Lab and math sheets with highlighted instructions
Graph paper to assist in organizing or lining up math problems
Use of tape recorder for lectures
Use of Interactive notebook
Use of a scribe
Use of computers and calculators
Books on tape
Graphic organizers
Quiet corner or room to calm down and relax when anxious
Preferential seating
Alteration of the classroom arrangement
Reduction of distractions
Answers to be dictated
Hands-on activities
Ability to type all assignments
Follow a routine/schedule
Teach time management and organizational skills
Rest breaks
Verbal and visual cues regarding directions and staying on task
Agenda book and checklists
Daily check-in with case manager or special education teacher
Adjusted assignment timelines
Visual daily schedule



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**ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY
GLOBAL SKILLS**

Varied reinforcement procedures
Immediate feedback
Work-in-progress check
Personalized examples

TESTING AND ASSESSMENT ACCOMMODATIONS AND MODIFICATIONS:

Answers to be dictated
Frequent rest breaks
Additional time
Oral testing
Choice of test format (multiple-choice, essay, true-false)
Alternate ways to evaluate (projects or oral presentations instead of written tests)
Accept short answers
Open-book or open-note tests
Read test and directions to student
Provide study guides prior to tests
Highlight key directions
Test in alternative site
Use of calculator
Extra credit option
Pace long-term projects
Preview test procedures
Simplified test wording; rephrased test questions and/or directions

GENERAL ACCOMMODATIONS AND MODIFICATIONS:

Allow outlining, instead of writing for an essay or major project
Use of alternative books or materials on the topic being studied
Computerized spell-check support
Word bank of choices for answers to test questions
Provision of calculator for math tests
Film or video supplements in place of reading text
Reworded questions in simpler language
Projects instead of written reports
Highlighting important words or phrases in reading assignments
Modified workload or length of assignments/tests
Modified time demands

What Does the Gifted and Talented Experience Look Like? *Springfield Public Schools*

Mission Statement

The Gifted and Talented Program of the Springfield Public Schools aims to provide a meaningful and rigorous education that instills the value of lifelong learning and empowers all students to reach their full potential and become self-fulfilled creative leaders in accordance with the comprehensive standards of our state. We accomplish this by offering challenging, real-world experiences in a student-centered environment.

We recognize that students come from diverse socioeconomic, cultural, and ethnic backgrounds, and the mission of the gifted and talented program is to provide opportunities for students to explore their intellectual, creative, and artistic gifts and talents within the classroom and with beyond-the-classroom experiences. It is essential to provide diverse, appropriate, and ongoing learning experiences and environments that incorporate students' academic, psychological, and social needs. Our responsibility is to provide students with educational alternatives that teach, challenge, and expand their knowledge, while simultaneously stressing the development of independent and self-directed learners who continuously generate questions, analyze, synthesize, and evaluate information and ideas.

New Jersey Administrative Code 6A:8-3.1 defines students who are gifted and talented as those students who possess or demonstrate high levels of ability in one or more content areas when compared to their chronological peers in the local district and who require modification of their educational program if they are to achieve in accordance with their capabilities.

Goals:

To support our mission, we have established the following goals to guide our work:

- To infuse into the general education program a broad range of activities for high-level learning that will challenge all students to perform at advanced levels, and provide extended opportunities, resources, and support in particular areas where student interest or talent is demonstrated.
- To provide a continuum of gifted education services that will strengthen the total school program, offer enriching and challenging learning opportunities for all students, and provide specialized learning experiences
- To promote achievement of students' best potentials and increased ability.

Through a productive and collaborative relationship among the building principals, classroom teachers, and the Gifted and Talented teacher, our schools can create programming that will enhance the learning experience for every student and serve the unique and specialized needs of students currently demonstrating gifted behaviors.

Elements of the Schoolwide Enrichment Model, W.I.N (What I Need), differentiated instruction, advanced classes, or individual programs into a student's regular instruction program are integral to this overarching framework for gifted education in the Springfield School District.

Reference Board Policy and Regulation 2464 – Gifted and Talented Pupils (M)

Early Childhood Center **Edward V. Walton**

Schoolwide Virtual Enrichment

All first and second grade students have access to the [Gifted and Talented Virtual Classroom](#). This virtual classroom is a space for students to complete various challenges and enrichment opportunities at their own pace. Students can receive feedback and additional adaptable resources to meet their individual learning needs. The virtual classroom design expands accessibility to enrichment resources and allows students to choose learning activities according to their unique interests and abilities. The purpose of the activities is to encourage problem-solving, develop critical thinking

skills, and expand curiosity and imagination. Activities are aligned to the New Jersey Student Learning Standards.

Gifted and Talented Teacher as a Resource

The Gifted and Talented teacher serves as a resource to all teachers within Edward V. Walton School. Teachers seeking resources for their high-ability learners will receive additional support from the Gifted and Talented teacher in various ways. This support may include additional units of study, challenging resources, and student projects.

Elementary Schools **James Caldwell** **Thelma L. Sandmeier**

The goal is to engage small groups of students in intensive learning experiences through standards-based, rigorous, and relevant units of study that supplement, not supplant, the grade-level curriculum and support students' unique learning needs.

Enrichment Experience Grade 3

Beginning in third grade, the G&T teacher will cycle through all classrooms to work on problem-solving and enrichment tasks with students. Driven by assessment data, academic performance, student interest, and teacher observation, small groups of students will meet with the G&T teacher during W.I.N. (What I Need) periods throughout the week that the teacher is assigned to their classroom teacher. Groupings will be flexible and monitored to best meet each student's needs throughout the school year. Activities will include brain teasers, puzzles, strategic thinking, problem-solving, and STEM challenges.

Targeted Gifted and Talented Programing Grades 4-5

Students may become identified as Gifted and Talented in fourth grade. Students that are identified may receive support from the G&T Teacher for up to five periods (200 minutes) a week during W.I.N. (What I Need) periods. Identified students will meet to explore grade-level content while incorporating depth and complexity in a student-centered, problem-based environment. The Gifted and Talented Program aims to provide students with various advanced and challenging learning experiences across content areas to promote independent thinking skills, refine critical thinking and communication skills, cultivate joy in learning, and expand student interests through problem-solving. The instruction that students receive incorporates 21st Century Skills and advanced content that is challenging, hands-on, and relevant to the real world.

Strategies and Practices that Support Gifted and Talented Students

- Adjusted Pace of Lessons
- Inquiry-Based Instruction
- Higher-Order Thinking Activities
- Interest-Based Content
- Real World Problem Solving/Problem Based Learning
- Independent Study/Passion Projects
- Units of Study with Like-Minded Peers

Schoolwide Virtual Enrichment

All JCS and TLS students have access to grade level-specific [Gifted and Talented Virtual Classrooms](#). These virtual classrooms are a space for students to complete various challenges and enrichment opportunities at their own pace. Students are able to receive feedback and additional opportunities based on their needs. The virtual classrooms have expanded the accessibility of enrichment resources directly to the students and allows for students to choose opportunities according to their interests and abilities. The purpose of the activities is to encourage problem solving, develop critical thinking skills, and expand curiosity and imagination in conjunction with the New Jersey Student Learning Standards.

Gifted and Talented Teacher as a Resource

In addition to classroom support, the Gifted and Talented teacher also serves as a resource to all teachers in the building. Teachers that are seeking resources for their high ability learners will receive additional support from the Gifted and Talented teacher in various ways. This may include additional units of study, challenging resources, student projects, and meeting with the G&T teacher as needed.

Additional Enrichment Opportunities

Across all grade levels 3-5, as recommended by the classroom teacher, students exhibiting a need for additional enrichment may have the opportunity to meet with the G&T teacher as the schedule allows. Groupings will be flexible and monitored to best meet the students' needs throughout the school year. Activities will include, brain teasers, puzzles, strategic thinking activities, problem-solving challenges, and STEM challenges. Students engage in an extended process of asking questions, using resources, and developing answers that lead to thinking about what and how they are learning. Students are held accountable for how they work and use their time by demonstrating their learning through products or presentations.

Students self-select to participate in individual and/or group projects based on interest and commitment. The classroom teacher and/or the enrichment teacher will help guide and monitor student exploration of chosen topics, facilitating their learning with resources and teaching of needed skills.

Secondary Schools
Florence M. Gaudineer Middle School
Jonathan Dayton High School

Grades 6-12: Access to specific content programs with higher levels of academic challenges (i.e. Pre-Algebra, Accelerated Communication Arts, and Advanced Placement Classes)

Dual Credit Courses provide students the opportunity to obtain high school credit, and college credit, simultaneously through partnerships with several institutions.

Project Lead the Way (PLTW) students become builders of technology by engaging in real world activities. Students are empowered as design thinkers collaborating on real world projects.

Gifted and Talented Identification Criteria

The Springfield Schools Gifted and Talented Program recognizes that students require differentiated learning experiences beyond the core curriculum being taught because of their advanced abilities in one or more content areas. These students may also have other cognitive qualities such as curiosity, creativity, motivation, leadership, and passion that require modifications to their academic experience.

Multiple Measures of Eligibility

Kindergarten through grade twelve identification process for gifted and talented students includes multiple measures. Multiple measures may include but are not limited to: achievement test scores; grades; student performance or products; intelligence testing; parent, student, and/or teacher recommendation; and other appropriate measures. The identification methodology is developmentally appropriate, non-discriminatory, and related to the programs and services offered by the Springfield School District. The identification procedures are reviewed annually.

According to N.J.A.C. 6A:8-3.1, all public school districts must have a board-approved gifted and talented identification process and provide services for identified students enrolled in the grades of that school district. The regulations require that identification and services be made available to students in grades K-12.

When students are recommended for the Gifted and Talented Program there are multiple measures that are considered to determine if services are necessary and appropriate. The assessments used are as follows:

- Cognitive Abilities Test (CogAT)
- Classroom Performance/Student Portfolios
- DRA2 Level
- iReady Diagnostic Scores
- Gifted Indicators Checklist
- Start Strong/NJSLA Assessment Data

The N.J.A.C. requires that students be compared to their chronological peers in the local school district. The New Jersey Department of Education has not established state-level criteria for identifying students who are gifted, such as mandated tests or assessments, grade point averages, or IQ scores. Local school districts must use multiple measures to identify students.

Procedures

<https://www.straussesmay.com/seportal/Public/DistrictPolicy.aspx?policyid=2464&id=b8a33a9f505e4998a6db3fb8e1de778b>

Gifted and Talented Program Identification Matrix

Minimum Score Required for Consideration: 14 Points

1 Point	2 Points	3 Points
Cogat Assessment Overall Stanine Score of a 7	Cogat Assessment Overall Stanine Score of an 8	Cogat Assessment Overall Stanine Score of a 9
iReady Math Assessment Just Below Current Grade Level	iReady Math Assessment On Grade Level	iReady Math Assessment ½ Year + Above Current Level
iReady ELA On Grade Level	iReady ELA ½ Year Above Current Level	iReady ELA One Full Grade Level + Above Current Level
NJSLA Math Approaching Expectations	NJSLA Math Met Expectations	NJSLA Math Exceed Expectations
NJSLA ELA Approaching Expectations	NJSLA ELA Met Expectations	NJSLA ELA Exceed Expectations
HOPE Teacher Rating Scale Raw Score: 11 - 29	HOPE Teacher Rating Scale Raw Score: 30 - 49	HOPE Teacher Rating Scale Raw Score: 50-66

Team meetings present the opportunity to review data and assess the educational needs of all students. Teacher provides examples of student work exhibiting above and beyond grade level expectations, creativity, leadership, critical and abstract thinking. Programs for gifted and talented students will be periodically evaluated for their continuing efficacy and adjusted accordingly. The parent of any student identified as gifted or talented shall be consulted regarding any program designed to address the student's particular needs.

Resource Links

https://riversideinsights.com/cognitive_abilities_test

<https://www.curriculumassociates.com/programs/i-ready-learning>

<https://www.nj.gov/education/assessment/resources/>

<https://www.routledge.com/HOPE-Teacher-Rating-Scale-Involving-Teachers-in-Equitable-Identification/Gentry-Pereira-Peters-McIntosh-Fugate/p/book/9781618214522#:~:text=The%20HOPE%20Teacher%20Rating%20Scale,making%20it%20easy%20to%20use.>

Gifted and talented student: The “*[Strengthening Gifted and Talented Education Act](#)*” defines a gifted and talented student as a “student who possesses or demonstrates a high level of ability in one or more content areas when compared to their chronological peers in the school district and who require modifications of their educational program if they are to achieve in accordance with their capabilities.”

Twice-exceptional (2E) students: A twice-exceptional (2E) student is defined as “a student who is both gifted and a student with a disability. These students may also be referred to as having dual exceptionalities or as being gifted with learning disabilities (GT/LD). This also applies to students who are gifted with ADHD or gifted with autism” (New Jersey Association for Gifted Children, www.nagc.org).

Instructional adaptation: An adjustment or modification to instruction enabling a student who is gifted and talented to participate in, benefit from, and demonstrate knowledge and application of the New Jersey Student Learning Standards in one or more content areas at the instructional level of the student, not just the student's grade level.

Identifying gifted and talented students: The focus of identification is to provide programming and services in which students' specific learning needs and potential are appropriately addressed and met. In every New Jersey school district, there are students who require modifications to the general education curriculum if they are to achieve in accordance with their abilities. By identifying a student's general intellectual ability, creativity, or specific academic area aptitudes, we are acknowledging that they need programming and services outside of the general education/grade level curriculum to advance their learning.

NJDOE Fast Facts

<https://www.nj.gov/education/standards/gifted/>

<https://www.nj.gov/education/standards/gifted/legislation.shtml>

Supplemental Resources/Programming for Gifted Students

Edward V. Walton

- PETS Program – Primary Education Thinking Skills
- Group Solutions/Group Solutions 2 – Cooperative Logic Activities
- Lollipop Logic
- Beginning Thinking Skills
- AIMS Education Programming

James Caldwell and Thelma L. Sandmeier

Math/ELA

- Project M3: Mentoring Mathematical Minds
- Junior Great Books
- AIMS Education Programming
- Borenson Hands on Equations
- BizWorld
- Perplexors
- Advanced Math Explorations grade 3-5
- Challenging Units for Gifted Learners (ELA and Math)
- Creative Curriculum Extenders
- Differentiated Lessons & Projects
- Challenge Math Grades 4+
- Differentiating Instruction with Menus (All Content Areas)
- Jacob's Ladder
- Genius Hour/Passion Project
- Spatial Reasoning
- Logic Puzzles, Brain Games, Analogies

STEM

- Engineering is Elementary
- Engineer Throughout the Year
- PBS Design Squad
- DefinedSTEM
- Project Lead the Way (PLTW)

Enrichment Events

Experience for all students to be enriched through events related to the curricular or extracurricular activities. Examples include after school clubs, PTA-sponsored events, leadership opportunities, visual and performing arts, and community service opportunities.



SPRINGFIELD PUBLIC SCHOOLS

**ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY
GLOBAL SKILLS**

Pass/no pass option

Modified grades based on IEP

BEHAVIOR ACCOMMODATIONS FOR STUDENTS:

- Breaks between tasks
- Cue expected behavior
- Daily feedback to student
- Have contingency plans
- Use de-escalating strategies
- Use positive reinforcement
- Use proximity/touch control
- Use peer supports and mentoring
- Model expected behavior by adults
- Have parent sign homework
- Set and post class rules
- Chart progress and maintain data



SPRINGFIELD PUBLIC SCHOOLS

ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY
GLOBAL SKILLS

Accommodations and Modifications for ESL Students

- Give tests orally
- Give instructions/directions in writing and orally
- Assign a peer tutor, same language or English speaking
- Allow use of bilingual/translation dictionary
- Provide summaries of text or study guides of particular chapters
- Allow errors in speaking
- Allow errors in writing
- Accept writing in first language
- Highlight key vocabulary
- Reduce amount of work required
- Assess comprehension through demonstration or other alternative means (gestures, drawings)
- Rephrase questions, directions, and explanations
- Reduce multiple choices on assessments
- Provide study guides and/ or outlines
- Shorten reading assignments
- Allow extended time for test/project completion
- Use of audio books
- Use of graphic organizers
- Use reduced text, so that print is not dense
- Use visuals/pictures throughout lesson/unit/assignment
- Adapt homework to reflect language proficiency/home support
- Adapt homework to reflect home support
- Provide hands-on activities and explanations
- Allow extended time to answer questions, and permit drawing, as an explanation
- Use of translation dictionaries to locate words in the native language
- Use anecdotal records and portfolio of work as forms of assessment
- Use story retellings to assess comprehension