04_Language of Science

Content Area: **English Language Services**
Course(s):
Time Period: **Full Year**
Length: **6-8 weeks**
Status: **Published**

General Overview, Course Description or Course Philosophy

Students identified as limited English proficient, will receive pull-out services in individual or small groups settings for a minimum of 120 minutes per week of instruction. *This course is designed for English Language Learners in **grades 9-12**.* Throughout the school year the students will investigate the following global themes: school culture, holidays, immigration, challenges, growing & changing, communicating for academia & social skills. This enables the students to focus & progress on their skills in listening, reading, speaking & writing as they progress through English language proficiency levels. Students will learn content and be assessed through various performance tasks using many different methodologies that are scaffolded to meet the ever-changing needs of English language learners. The goal of the ELS program is to help students develop language skills necessary to be successful students and members of society.

OBJECTIVES, ESSENTIAL QUESTIONS, ENDURING UNDERSTANDINGS

Narrate -Interpret and construct narratives with complex plots, themes, and developments

Identify perspectives in historical narratives and discern authors' intent in presenting history in a particular light

Develop characters in their own stories and connect themes to issues in past and present

Inform - Manage information about entities according to their composition, taxonomies, and classifications

Identify and describe various relationships among ideas and information

Use available new information to construct and revise research reports that incorporate multiple sources of information

Explain - Analyze and evaluate data in explanations

Identify multilayered causal or consequential relationships in social or scientific phenomena

Apply reasoning or theory to link evidence to the claims in explanations

Construct and revise explanations based on evidence from multiple sources

Argue -Construct claims that offer objective stance using less polarized language so that claims appear more "balanced"

Anticipate what evidence audiences will need and adjust evidence and reasoning accordingly

Adjust arguments based on new data from experiments

Discern what types of arguments are needed, when they are needed, and what purposes they meet in different content areas

Essential Questions:

- How do we describe reliable and valid evidence from multiple sources about a phenomenon?
- How do we establish neutral or objective stance in how results are communicated?
- How do we develop reasoning to illustrate and/ or predict the relationships between variables in a system or between components of a system?
- How do we summarize and refine solutions referencing scientific knowledge, evidence, criteria, and/or trade-offs?
- How do we introduce and contextualize topic/ phenomenon in current scientific or historical episodes in science?
- How do we defend or refute a claim based on data and evidence?
- How do we establish and maintain an appropriate tone and stance (neutral/objective or biased/ subjective)?
- How do we signal logical relationships among reasoning, evidence, data, and/or models when making and defending a claim, counterclaim, and/or rebuttal?

Enduring Understandings:

- English language learners engage in oral communication in a variety of situations for a variety of purposes and audiences.
- English language learners engage in written communication in a variety of forms for a variety of purposes and audiences.
- English language learners process, interpret, and evaluate written language, symbols, and text with understanding and fluency.
- English language learners process, understand, interpret, and evaluate spoken language in a variety of situations.

CONTENT AREA STANDARDS

WIDA Standard 4: Language for Science

English language learners communicate information, ideas and concepts necessary for academic success in the content area of science.

ELL.9-12.4	The Language of Science
ELL.9-12.4.L.2.1	Identify types or properties of elements or compounds from diagrams and oral statements (e.g., weight of electrons & protons)
ELL.9-12.4.R.1.1	Identify data from scientific research from tables, charts or graphs
ELL.9-12.4.R.2.1	Match sources of data depicted in tables, charts or graphs from scientific studies with research questions
ELL.9-12.4.R.3.1	Describe use of data from scientific research presented in tables, charts or graphs with text
ELL.9-12.4.S.1.1	Identify components of food chains or life cycles from diagrams or graphic organizers
ELL.9-12.4.S.2.1	Give examples of components or functions of food chains or life cycles from diagrams or graphic organizers
ELL.9-12.4.S.3.1	Describe sequence within food chains or life cycles from diagrams or graphic organizers
ELL.9-12.4.S.4.1	Explain the importance or impact of the iterative nature of food chains or life cycles
ELL.9-12.4.S.5.1	Discuss how food chains or life cycles within ecosystems are interdependent
ELL.9-12.4.W.1.1	Label examples from different taxonomies using illustrations and word/phrase banks (e.g., one-cell plants and animals)
ELL.9-12.4.W.2.1	Describe in sentences features of taxonomies depicted in illustrations or graphic organizers
ELL.9-12.4.W.3.1	Summarize in a series of related sentences features of taxonomies depicted in illustrations or graphic organizers
ELL.9-12.4.W.4.1	Compare/contrast in paragraph form features of taxonomies depicted in illustrations or graphic organizers
ELL.9-12.4.W.5.1	Integrate information about taxonomic systems into essays or reports

RELATED STANDARDS (Technology, 21st Century Life & Careers, ELA Companion Standards are Required)

21st. Century Life & Careers

Creativity & Innovation

Critical Thinking

Communication

Collaboration

Life & Career Skills

Information Literacy

Media Literacy

Chronological Thinking

Spatial Thinking

Presentational Skills

Problem Solving

Decision Making

SCI.K-PS3	Energy
SCI.K-LS1-1	Use observations to describe patterns of what plants and animals (including humans) need to survive.
LA.SL.11-12.1	Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with peers on grades 11–12 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.
LA.SL.9-10.1	Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with peers on grades 9–10 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.
SCI.K-ESS2-2	Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs.
LA.SL.11-12.2	Integrate multiple sources of information presented in diverse media or formats (e.g., visually, quantitatively, qualitatively, orally) evaluating the credibility and accuracy of each source.
LA.SL.9-10.2	Integrate multiple sources of information presented in diverse media or formats (e.g., visually, quantitatively, qualitatively, orally) evaluating the credibility and accuracy of each source.
LA.L.11-12.1	Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
LA.L.9-10.1	Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

STUDENT LEARNING TARGETS

Refer to the 'Declarative Knowledge' and 'Procedural Knowledge sections.

Declarative Knowledge

Students will understand that:

- abstract nouns introduce concepts, ideas, and technical terms (effects, impairment,

perception, antioxidants).
- cohesion reference ideas, information across text (pronouns, substitutions, renaming, synonyms, collocations).
- relating verb groups state relationships or attributes (have, be, belong to).
- a variety of structures (embedded clauses, relating verbs, nominalizations, and noun groups) define a phenomenon.
- word choices moderate stance, such as hedging (could/might, a possibility, usually).
- connectors link clauses and combine ideas into logical relationships (as a result, therefore).
- given/new patterns link relationships, add new details, and condense information into abstract nouns.
- labeling/describing diagrams, graphics, data, statistics to add information about a phenomenon.
- conditional clauses (if/then) to generalize a phenomenon to additional contexts.
- abstract nouns introduce concepts, ideas, and technical terms (atmosphere, organisms, carbon dioxide, noble gases).
- a variety of verb groups (past, timeless present, future, conditional) describe and/or extrapolate events known or anticipated.
- word choice moderate stance, i.e., hedging (undoubtedly, is likely, probable, a possibility, usually, arguably).
- given/new patterns link relationships, add new details, and condense information into abstract nouns.
- cohesion reference ideas, concepts, phenomena across text, using pronouns, substitutions, renaming subjects, collocations, synonym (fusion-radiation-energy) Connectors to signal time (next, at the same time), causality (therefore, consequently, as a result, because), clarification (for example, this shows how…).

Procedural Knowledge

Students will be able to:

- locate components of elements or compounds.
- identify appropriate and sufficient evidence from data, models, and/ or information from investigations of a phenomenon or design solutions.
- match sources of data illustrated in tables, graphs, etc.
- describe sequence from diagrams and/or graphic organizers.
- give examples of components or functions of food chains or life cycles.
- compare/contrast reasoning and claims based on evidence from competing arguments or design solutions.

- define investigable questions or problems based on observations, information, and/or data about a phenomenon.
- discuss or paraphrase central ideas in complex evidence, concepts, processes, and information to help explain how or why a phenomenon occurs.
- evaluate the extent to which reasoning, theory and/or models link evidence to claims and support conclusions.
- evaluate currently accepted explanations, new evidence, limitations (trade-offs), constraints, and ethical issues.

EVIDENCE OF LEARNING

Refer to the 'Formative Assessments' and 'Summative Assessments' sections.

Formative Assessments

- quizzes/tests
- analyzing variety of student work
- strategic questioning
- listening comprehension tasks
- class participation/ discussions
- daily communication activities via the 3 modes of communication
- online mini-assessments
- partner activities
- individual/group response
- worksheets
- homework
- retell
- list
- sorting
- following directions
- answer comprehension questions
- fluency
- practice and successfully completing activities and exercises with little assistance
- exit tickets

Summative Assessments

- final interpersonal or speaking presentations
- completing projects or assignments
- end-of unit projects or assignments
- portfolio (multiple formats)
- completion of "Can-Do" statements for interpersonal speaking, presentational speaking, presentational writing, interpretive listening, and interpretive reading
- role playing
- tests/quizzes
- research papers
- culminating communicative activity
- student assessment through authentic interpretive, interpersonal and presentational activities

RESOURCES (Instructional, Supplemental, Intervention Materials)

Food Chains Compilation: Crash Course Kids

https://www.youtube.com/watch?v=xvW4Cg-1g4U

https://www.youtube.com/watch?v=nBrEcUovvOc

https://www.youtube.com/watch?v=hLq2datPo5M

https://www.youtube.com/watch?v=aesKZR7J2nI

https://www.youtube.com/watch?v=KOp9q-whttps://www.youtube.com/watch?v=aesKZR7J2nIeDMA

https://www.youtube.com/watch?v=PWi-dQ-FMB8

https://www.youtube.com/watch?v=V5RSpMQQOpw

https://www.youtube.com/watch?v=cqe2Amos0yU

graphic organizers

worksheets

books

INTERDISCIPLINARY CONNECTIONS

- WIDA Standard 1: Language for Social and Instructional Purposes English language learners communicate for social and instructional purposes within the school setting.
- WIDA Standard 2: Language for Language Arts English language learners communicate information, ideas and concepts necessary for academic success in the content area of language arts.
- WIDA Standard 4: Language for Science English language learners communicate information, ideas and concepts necessary for academic success in the content area of science.

Career Ready Practices

CRP1. Act as a responsible and contributing citizen and employee.

CRP2. Apply appropriate academic and technical skills.

CRP4. Communicate clearly and effectively and with reason.

CRP5. Consider the environmental, social and economic impacts of decisions.

CRP6. Demonstrate creativity and innovation.

CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.

CRP9. Model integrity, ethical leadership, and effective management.

CRP11. Use technology to enhance productivity.

Technology Operations & Concepts/ Interdisciplinary Connections:

- Implementation of conventions of Standard English
- Language acquisitions
- Environmental Literacy
- Google
- Educational tech applications

ACCOMMODATIONS & MODIFICATIONS FOR SUBGROUPS

See link to Accommodations & Modifications document in course folder.

- teacher modeling
- simplify written and verbal instructions
- use teaching strategies and learning resources that that make content comprehensible

- cultural responsiveness
- total Physical Response (TPR) - direct action to internalize new language learning concepts
- provide leveled or guided reading
- provide regular and/or picture dictionaries
- couple new vocabulary with visual references
- simplify written and verbal instructions
- modify activities & assessments
- scaffolding
- graphic organizers
- modify lesson pacing and/or structure
- word banks
- provide extended time
- providing examples
- provide additional instruction including reviews, & drills
- alternate responses such as, drawing a series of pictures with captions, oral responses, etc.
- frequent breaks
- rephrase questions, directions & explanations
- shorten reading assignments
- adapt homework to reflect language proficiency and home support
- use story retellings to assess comprehension