Energy Technologies
Supplemental Program Resources

This document was prepared by:

Office of Career Readiness, Adult Learning, and Education Options
Nevada Department of Education
755 N. Roop Street, Suite 201
Carson City, NV 89701

www.doe.nv.gov

Supplemental Program Resources 2023

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Introduction

This document provides supplemental information for the Energy Technologies program of study. It may be updated or revised as the base program of study, or complementary programs, are updated, added, or removed. Please contact the appropriate Education Programs Professional with any questions.

The Program of Study includes the approved courses, complementary courses, alignment(s) to industry, postsecondary options, and additional information.

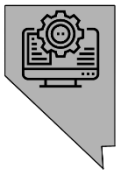
The Equipment List for the Energy Technologies program of study is included and, if applicable, additional items used only in the complementary course(s) are noted.

The Crosswalks and Alignments connect and support the Energy Technologies standards for the Science, Technology, Engineering, and Mathematics program of study. Complementary course standards are not listed in the crosswalks and alignments.

Program of Study Information

The following program of study information sheet as well as the program structure tables for the courses are provided to be able to print separately for handouts. The information provided is based on the best available information at the time of this document and will be updated as appropriate.

Energy Technologies



The Energy Technologies program introduces students to the power industry. Students will gain an understanding of the engineering design process, various energy sources, energy forms, energy principles, efficiency concepts, electricity, and electrical principles. In addition, construct energy systems, model the uses of various sources of energy and energy efficiency, and conservation will be explored in this program.

Science, Technology, Engineering, and Mathematics Career Cluster

Science, Technology, Engineering, and Mathematics® is focused on planning, managing, and providing scientific research and professional and technical services (e.g., physical science, social science, engineering) including laboratory and testing services, and research and development services.

Postsecondary Options

Certificate/License

- Instrumentation Technology, CA (GBC)
- Electrical Systems Technology, CA (GBC)

Associate Degrees

- Utilities – Electrical Power (CSN)
- Utilities – Natural Gas (CSN)
- Engineering (TMCC, WNC)

Bachelor's Degree

- Mechanical Engineering (UNLV, UNR)

NEVADA Department of Education

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For additional information on this cluster, please contact:

cteinfo@doe.nv.gov

Website: https://doe.nv.gov/offices/craleo/cte

Approved Courses

Energy Technologies I

Energy Technologies II

Complementary Courses

Energy Technologies Advanced Studies

Energy Technologies Practices

CTE Work Experience – Science, Technology, Engineering, and Mathematics

Industry Recognized Credentials- Energy Technologies

Work-Based Learning Opportunities

Job Shadowing / Internship / CTE Work Experience/ School-based Enterprise/ Apprenticeship Ready Programs

Career and Technical Student Organization

SkillsUSA SkillsUSA NEVADA TSA TECHNOLOGY STUDENT ASSOCIATION

State Recognized Industry Certifications

Refer to the Governor's Office of Innovation's Nevada Eligible Industry Credentialing List

Aligned to Industry

Occupation	Median Wage Per year	Annual Openings	% Growth
Electrical Installers and Repairers	$61,760	9,900	-1.0%
Solar Photovoltaic Installers	$47,670	2,500	27.0%
Power Generating Plant Operator	$94,790	3,200	-15.0%
Power Distribution Engineer	$101,780	20,100	3.0%
Line Installers and Repairers	$74,530	23,500	6.0%
Electrical Technician	$63,640	11,100	0.0%

Source U.S. Bureau of Labor Statistics 2022

Program Structure for Energy Technologies

The core course sequencing is provided in the following table. Complementary Courses are available and provided later in this document. The following courses provide a completed program of study.

Core Course Sequence (R) with Lab Course(s) (C)

Required/ Complementary	Course Title	Abbreviated Name	CIP Code	SCED Subject Area	SCED Course Identifier	SCED Course Level	SCED Unit Credit	SCED Course Sequence	SCED Course Number
R	Energy Technologies I	ENERGY TECH I	15.1701	03	012	G	1.00	12	03012G1.0012
R	Energy Technologies II	ENERGY TECH II	15.1701	03	012	G	1.00	22	03012G1.0022

The complementary courses are provided in the following table. **The qualifying program of study must be completed prior to enrolling in the complementary course(s)**. A program does not have to utilize the complementary courses for students to complete their program of study.

Required/ Complementary	Course Title	Abbreviated Name	CIP Code	SCED Subject Area	SCED Course Identifier	SCED Course Level	SCED Unit Credit	SCED Course Sequence	SCED Course Number
C	Energy Technologies Advanced Studies	ENERGY TECH AS	15.1701	03	012	E	1.00	11	03012E1.0011
C	Energy Technologies Practices	INT ENERGY TECH	14.4801	03	012	E	1.00	11	03012E1.0011
C	Industry Recognized Credential - Energy Technologies	IRC ENERGY TECH	15.1701	21	999	E	1.00	11	21999E1.0011
C	CTE Work Experience - Science, Technology, Engineering, and Mathematics	WORK EXPER STEM	99.0015	21	998	G	1.00	11	21998G1.0011

CIP Code – Classification of Instructional Programs (CIP) Codes

SCED – School Courses for the Exchange of Data that populates the State Infinite Campus System and the System for Accountability Information in Nevada (SAIN)

Course Descriptions

Energy Technologies I

Prerequisite: None

This course introduces students to the energy industry. Students will gain an understanding of safety procedures, equipment, tools, basic electricity principles, and the various energy sources. Students will also explore environmental impacts and availability of energy resources. Students will apply the engineering design process to technologies to explore energy principles. Students will be introduced to career opportunities and necessary job skills related to the various forms of energy.

Energy Technologies II

Prerequisite: Energy Technologies I

This course is a continuation of Energy Technologies I. This course provides intermediate energy technologies students with instruction in energy forms, energy principles, efficiency concepts, building systems, and policies. Students will engage in the use and development of energy conversion systems. Areas of emphasis include solar energy, wind energy, and geothermal energy resources. The appropriate use of technology and industry-standard equipment is an integral part of this course.

Energy Technologies Advanced Studies

Prerequisite: Completion of Energy Technologies Program of Study

This course is offered to students who have completed all content standards in the Energy Technologies program of study and desire to pursue advanced study through investigation and in-depth research. Students are expected to work independently or in a team and consult with their supervising teacher for guidance. The supervising teacher will give directions, monitor, and evaluate the students' topic of study. Coursework may include various work-based learning experiences such as internships and job shadowing, involvement in a school-based enterprise, completion of a capstone project, and/or portfolio development. This course may be repeated for additional instruction and credit.

Energy Technologies Practices

Prerequisite: Completion of Energy Technologies Program of Study

This course is offered to students who have completed all content standards in the Energy Technologies program of study. Students explore in-depth study of power distribution systems, electrical circuits, and electrical measurements. Applied knowledge of energy technologies includes calculating series resistance, parallel resistance, and the function, operation, testing, and resetting of a circuit breaker. Electrical control wiring, grounding control systems, the introduction to transformers, and ways to identify energy efficiency and conservation are additional topics of exploration in this course.

Industry-Recognized Credential – Energy Technologies

Prerequisite: Completion of Energy Technologies Program of Study

This course is offered to students who have completed all content standards in the Energy Technologies program of study and desire to pursue an Industry-Recognized Credential that aligns with the standards and skills associated with the Energy Technologies Program of Study. This course is designed to expand the students' opportunities to pursue certification aligned with employment standards in the industry aligned with this program of study. The supervising teacher will provide instruction aligned with the certification requirements, monitor progress toward certification, and provide the students with appropriate testing or certification opportunities associated with the intended Industry-Recognized Credential that is the subject of the course. This course may be repeated for additional instruction and credit.

CTE Work Experience – Science, Technology, Engineering, and Mathematics

Prerequisite: Completion of Level 2 course in the qualifying program of study

This course is designed to expand the students' opportunities for applied learning. This course provides an in-depth CTE work experience that applies the processes, concepts, and principles as described in the classroom instruction. This course will encourage students to explore and develop advanced skills through work-based learning directly related to the program of study. The course must follow NAC 389.562, 389.564, 389.566 regulations.

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Equipment List

This recommended list is based upon a classroom size of 25 students. All costs are estimated and may be adjusted once verified and justified by districts with current quotes. No specific equipment vendor or brand names are endorsed due to various possibilities, but school districts should consult with stakeholders to ensure industry-recognized equipment and software are purchased. The intent of this list is to provide school districts with guidance on the equipment needed to implement the state standards for an Energy Technologies program.

CTE Classroom Equipment Total: $1,560

QTY	ITEM DESCRIPTION	UNIT	TOTAL
2	Storage Cabinets (36” x 12” x 72”) (lockable)	$400	$800
1	Eyewash Station	$300	$300
2	Fire Extinguisher	$130	$260
1	Sink with Soap Dispenser	$100	$100
1	First Aid Kit	$100	$100

Program Equipment Total: $28,500

QTY	ITEM DESCRIPTION	UNIT	TOTAL
25	Student Computers	$1,000	$25,000
1	Teacher Computer (enhanced memory/storage, download capable)	$1,500	$1,500
1	Technology Storage/Charging System	$2,000	$2,000

Instructional Materials Total: $4,000

QTY	ITEM DESCRIPTION	UNIT	TOTAL
25	Student Textbooks Approved CTE Instructional Materials list can be found here.	$100	$2,500
1	Teacher Textbook Edition and Resources	$500	$500
1	Resources (manuals, games, etc. for multiple types of energy sources and energy codes)	$1,000	$1,000

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Instructional Supplies **Total: $16,400**

QTY	ITEM DESCRIPTION	UNIT	TOTAL
10	Renewable Energy Project Kits (or equivalent)	$300	$3,000
10	Basic Soldering Tool Sets	$200	$2,000
5	Cordless Drills (14 volt or higher)	$100	$500
10	Variable DC Power Supplies, 18V 0-2A	$150	$1,500
18	Digital Multimeters	$100	$1,800
Varies	Tools and Hardware (e.g., tape measures, clamp lights and bulbs, adjustable wrenches, wrench sets, wire strippers, needle nose pliers, locking pliers, hex key sets, hacksaws and blades, files and file handles, hickory hammers, drill bits, precision screwdriver sets, S-hooks, utility knives and blades	$2,000	$2,000
Varies	Project supplies (e.g., light-emitting diodes [LED's] in various colors, single AAA battery holders, push-button switches, resistor kits and wires, solderless breadboards, alligator leads, electrical tape, sheet metal, heat lamps, soldering supplies etc.)	$4,000	$4,000
Varies	Computer Accessories (cases, covers, etc.) (optional)	$600	$600
Varies	Personal Protective Equipment PPE (safety glasses, work gloves, masks etc.)	$1,000	$1,000

Other **Total: $1,275**

QTY	ITEM DESCRIPTION	UNIT	TOTAL
1	Occupational Safety and Health Administration (OSHA) Instructor Training	$300	$300
25	Occupational Safety and Health Administration (OSHA) Student Exams	$39	$975

Category Totals:

Classroom Equipment	$1,560
Program Equipment	$28,500
Instructional Materials	$4,000
Instructional Supplies	$16,400
Other	$1,275
Estimated Program Total	**$51,735**

Crosswalks and Alignments for Program of Study Standards

Crosswalks and alignments are intended to assist the teacher make connections for students between the technical skills within the program and academic standards. The crosswalks and alignments are not intended to teach the academic standards but to assist students in making meaningful connections between their CTE program of study and academic courses. The crosswalks are for the required program of study courses, not the complementary courses.

Crosswalks (Academic Standards)

The crosswalks of the Energy Technologies Standards show connections with the Nevada Academic Content Standards. The crosswalk identifies the performance indicators in which the learning objectives in the Energy Technologies program connect with and support academic learning. The performance indicators are grouped according to their content standard and are crosswalked to the Nevada Academic Content Standards in English Language Arts, Mathematics, and Science.

Alignments (Mathematical Practices)

In addition to connections with the Nevada Academic Content Standards for Mathematics, many performance indicators support the Mathematical Practices. The following table illustrates the alignment of the Energy Technologies Standards Performance Indicators and the Mathematical Practices. This alignment identifies the performance indicators in which the learning objectives in the Energy Technologies program connect with and support academic learning.

Alignments (Science and Engineering Practices)

In addition to connections with the Nevada Academic Content Standards for Science, many performance indicators support the Science and Engineering Practices. The following table illustrates the alignment of the Energy Technologies Standards Performance Indicators and the Science and Engineering Practices. This alignment identifies the performance indicators in which the learning objectives in the Energy Technologies program connect with and support academic learning.

Crosswalks (Common Career Technical Core)

The crosswalks of the Energy Technologies Standards show connections with the Common Career Technical Core. The crosswalk identifies the performance indicators in which the learning objectives in the Energy Technologies program connect with and support the Common Career Technical Core. The Common Career Technical Core defines what students should know and be able to do after completing instruction in a program of study. The Energy Technologies Standards are crosswalked to the Science, Technology, Engineering, and Mathematics Career Cluster™ and the Engineering and Technology Career Pathway.

Crosswalk of Energy Technologies Program of Study Standards and the Nevada Academic Content Standards

English Language Arts: Language Standards

Nevada Academic Content Standards		Performance Indicators
L.11-12.6	Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.	1.5.2

English Language Arts: Reading Standards for Literacy in Science and Technical Subjects

Nevada Academic Content Standards		Performance Indicators
RST.11-12.2	Determine the central ideas or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.	2.1.16
RST.11-12.3	Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.	2.1.1, 2.1.19, 2.1.20; 4.2.8
RST.11-12.4	Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11–12 texts and topics.	2.1.16
RST.11-12.5	Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas.	2.1.16
RST.11-12.9	Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.	2.1.1, 2.1.2, 2.1.10, 2.1.20 4.1.2, 4.1.3, 4.1.5, 4.1.7 4.1.8; 5.1.3, 5.1.5, 5.2.1 5.2.2, 5.2.3, 5.2.5, 5.3.2 5.3.4, 5.4.2, 5.4.4, 5.5.2 5.5.4, 5.6.2, 5.6.4, 5.7.4 5.8.2, 5.8.4; 6.2.3, 6.3.2 7.1.2, 7.1.3, 7.1.5

English Language Arts: Speaking and Listening Standards

Nevada Academic Content Standards		Performance Indicators
SL.11-12.1a	Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas.	1.1.1, 1.1.2, 1.2.1, 1.2.4 1.4.2, 2.1.2; 4.1.4, 4.2.7 5.1.2, 5.2.4, 5.3.3, 5.4.3 5.5.3, 5.6.3, 5.7.2, 5.8.3 7.1.4, 7.1.5
SL.11-12.1d	Respond thoughtfully to diverse perspectives; synthesize comments, claims, and evidence made on all sides of an issue; resolve contradictions when possible; and determine what additional information or research is required to deepen the investigation or complete the task.	2.1.19
SL.11-12.2	Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data.	1.1.1, 1.1.2, 1.2.1, 1.2.4 1.4.2, 1.5.2
SL.11-12.4	Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.	1.1.1, 1.1.2, 1.2.1, 1.2.4 1.4.2, 1.5.2; 5.1.3

English Language Arts: Writing Standards for Literacy in Science and Technical Subjects

Nevada Academic Content Standards		Performance Indicators
WHST.11-12.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.	1.2.5, 1.4.1; 2.1.1, 2.1.2 2.1.10, 2.1.16, 2.1.17 4.1.10
WHST.11-12.5	Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.	1.4.4
WHST.11-12.6	Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.	1.4.5
WHST.11-12.8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into	1.1.2, 1.1.3, 1.4.2, 1.4.3 1.5.2; 4.1.2, 4.1.3, 4.1.5 4.1.7, 4.1.8; 5.1.3, 5.1.5 5.2.1, 5.2.2, 5.2.3, 5.2.5

	the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.	5.3.2, 5.3.4, 5.4.2, 5.4.4 5.5.2, 5.5.4, 5.6.2, 5.6.4 5.7.4, 5.8.2, 5.8.4; 6.2.3 6.3.2; 7.1.2, 7.1.3, 7.1.5
WHST.11-12.9	Draw evidence from informational texts to support analysis, reflection, and research.	2.1.16

Math: Algebra – Creating Equations

Nevada Academic Content Standards		Performance Indicators
ACED.A.4	Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations.	4.2.6

Math: Algebra – Reasoning with Equations and Inequalities

Nevada Academic Content Standards		Performance Indicators
AREI.B.3	Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.	4.2.6

Math: Functions – Linear, Quadratic, and Exponential Models

Nevada Academic Content Standards		Performance Indicators
FLE.B.5	Interpret the parameters in a linear or exponential function in terms of a context.	4.2.6

Science HS: Earth's Systems

Nevada Academic Content Standards		Performance Indicators
HS-ESS2-4	Use a model to describe how variations in the flow of energy into and out of Earth's systems result in changes in climate.	5.1.3, 5.2.4
HS-ESS2-6	Develop a quantitative model to describe the cycling of carbon among the hydrosphere, atmosphere, geosphere, and biosphere.	5.1.3

Science HS: Earth and Human Activity

Nevada Academic Content Standards		Performance Indicators
HS-ESS3-1	Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.	5.1.3, 5.2.4, 5.3.3, 5.4.3, 5.5.3, 5.6.3, 5.7.2, 5.8.3
HS-ESS3-2	Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios.	5.1.3, 5.2.4, 5.3.3, 5.5.3, 5.6.3, 5.7.2, 5.8.3
HS-ESS3-3	Create a computational simulation to illustrate the relationships among management of natural resources, the sustainability of human populations, and biodiversity.	5.1.3
HS-ESS3-4	Evaluate or refine a technological solution that reduces impacts of human activities on natural systems.	5.1.3
HS-ESS3-5	Analyze geoscience data and the results from global climate models to make an evidence-based forecast of the current rate of global or regional climate change and associated future impacts to Earth systems.	5.2.5
HS-ESS3-6	Use a computational representation to illustrate the relationships among Earth systems and how those relationships are being modified due to human activity.	5.1.3

Science HS: Matter and Its Interactions

Nevada Academic Content Standards		Performance Indicators
HS-PS1-8	Develop models to illustrate the changes in the composition of the nucleus of the atom and the energy released during the processes of fission, fusion, and radioactive decay.	5.8.2

Science HS: Motion and Stability – Forces and Interactions

Nevada Academic Content Standards		Performance Indicators
HS-PS2-5	Plan and conduct an investigation to provide evidence that an electric current can produce a magnetic field and that a changing magnetic field can produce an electric current.	5.1.2
HS-PS2-6	Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.	4.1.3, 4.1.7

Science HS: Energy

Nevada Academic Content Standards		Performance Indicators
HS-PS3-1	Create a computational model to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known.	6.2.3, 6.2.4
HS-PS3-3	Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.	5.1.2
HS-PS3-4	Plan and conduct an investigation to provide evidence that the transfer of thermal energy when two components of different temperature are combined within a closed system results in a more uniform energy distribution among the components in the system (second law of thermodynamics).	6.3.2, 6.3.3

Science HS: Waves and Their Applications in Technologies for Information Transfer

Nevada Academic Content Standards		Performance Indicators
HS-PS4-5	Communicate technical information about how some technological devices use the principles of wave behavior and wave interactions with matter to transmit and capture information and energy.	5.3.2

Alignment of Energy Technologies Standards and the Mathematical Practices

Mathematical Practices	Energy Technologies Performance Indicators
1. Make sense of problems and persevere in solving them.	4.2.7
2. Reason abstractly and quantitatively.	4.2.6, 4.2.7
3. Construct viable arguments and critique the reasoning of others.	
4. Model with mathematics.	4.1.6, 4.2.6; 6.1.3, 6.2.4
5. Use appropriate tools strategically.	4.1.10, 4.2.5
6. Attend to precision.	6.1.3, 6.2.4; 7.1.2
7. Look for and make use of structure.	
8. Look for and express regularity in repeated reasoning.	

Alignment of Energy Technologies Standards and the Science and Engineering Practices

Science and Engineering Practices	Energy Technologies Performance Indicators
1. Asking questions (for science) and defining problems (for engineering).	5.1.3, 5.2.4
2. Developing and using models.	5.1.3, 6.4.1
3. Planning and carrying out investigations.	4.2.5, 5.5.3, 5.6.3, 5.7.3, 5.8.3
4. Analyzing and interpreting data.	4.2.7
5. Using mathematics and computational thinking.	4.2.6, 4.2.7
6. Constructing explanations (for science) and designing solutions (for engineering).	3.1.3, 3.1.4, 4.1.7, 4.1.8; 5.2.6 5.3.5; 6.2.5
7. Engaging in argument from evidence.	
8. Obtaining, evaluating, and communicating information.	4.1.3, 4.1.4; 5.3.2, 5.3.3, 5.4.5 5.6.5, 5.7.5, 5.8.5

Crosswalks of Energy Technologies Standards and the Common Career Technical Core

Science, Technology, Engineering, and Mathematics Career Cluster	Performance Indicators
1. Apply engineering skills in a project that requires project management, process control and quality assurance.	5.1.6, 5.2.6, 5.3.5, 5.4.5 5.5.5, 5.6.5, 5.7.5, 5.8.5 5.9.1, 5.9.2; 6.2.5, 6.4.1
2. Use technology to acquire, manipulate, analyze. and report data	4.2.5; 5.9.3
3. Describe and follow safety, health and environmental standards related to science, technology, engineering. and mathematics (STEM) workplaces.	2.1.2, 2.1.3, 2.1.16
4. Understand the nature and scope of the Science, Technology, Engineering, and Mathematics Career ClusterTM and the role of STEM in society and the economy.	5.1.5, 7.1.3-7.1.5
5. Demonstrate an understanding of the breadth of career opportunities and means to those opportunities in each of the Science, Technology, Engineering, and Mathematics Career Pathways.	5.1.4; 7.1.5
6. Demonstrate technical skills needed in a chosen STEM field.	4.1.8, 4.1.10, 4.2.4, 4.2.5 4.2.9

Engineering and Technology Career Pathway	Performance Indicators
1. Use STEM concepts and processes to solve problems involving design and/or production.	4.1.9-4.1.11, 4.2.5-4.2.7
2. Display and communicate STEM information.	4.1.9-4.1.11, 4.2.5-4.2.7
3. Apply processes and concepts for the use of technological tools in STEM.	4.2.4-4.2.7
4. Apply the elements of the design process.	3.1.1-3.1.4, 5.9.1, 5.9.3 6.4.1
5. Apply the knowledge learned in STEM to solve problems.	6.1.2, 6.1.3, 6.2.3, 6.2.4
6. Apply the knowledge learned in the study of STEM to provide solutions to human and societal problems in an ethical and legal manner.	5.1.5, 5.2.3; 7.1.3, 7.1.4 7.1.6