



# Goodheart-Willcox Publisher

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*Correlation of*  
**Small Gas Engines, 11e, ©2017**  
 to the  
**Texas Essential Knowledge and Skills (TEKS)**  
**Course: §130.445 Small Engine Technology I (MLC 9438)**

The following chart lists the Knowledge and Skills Statements and Student Expectations for the Texas Essential Knowledge and Skills (TEKS) for Small Engine Technology I. For each Student Expectation, the corresponding pages in *Small Gas Engines* are listed.

Student Expectations	Textbook Page(s)
<b>(1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:</b>	
(1) (A) identify career development and entrepreneurship opportunities in the small engine technology industry	475–478, 480–484
(1) (B) identify careers in the small engine technology industry	475–478
(1) (C) apply competencies related to resources, information, interpersonal skills, problem solving, critical thinking, and systems of operation in the small engine technology industry	246–254, 475–478, 485–487
(1) (D) discuss certification opportunities	487–488
(1) (E) demonstrate skills and knowledge related to personal and occupational health and safety in the workplace	3–10, 371–373, 401–403, 437–438
(1) (F) discuss response plans to emergency situations	8–9
(1) (G) identify employers' expectations, appropriate work habits, ethical conduct, legal responsibilities, and good citizenship skills	9–10, 152–155, 479, 484–487
(1) (H) develop personal goals, objectives, and strategies as part of a plan for future career and educational opportunities	478–480, 487–488
<b>(2) The student demonstrates appropriate personal and communication skills. The student is expected to:</b>	
(2) (A) describe and demonstrate ethical and legal responsibilities for appropriate workplace conduct	9–10, 152–155, 485–486
(2) (B) demonstrate proper etiquette and behavior	485–486
(2) (C) demonstrate appropriate personal appearance and hygiene	484

Student Expectations	Textbook Page(s)
(2) (D) practice written and oral communication skills and employ effective listening skills	485–486
(2) (E) employ technical writing and preparation skills	250–254, 485–486
(2) (F) demonstrate effective speaking skills through prepared and extemporaneous oral presentations	485–486
<b>(3) The student describes the historical, current, and future significance of the small engine technology industry. The student is expected to:</b>	
(3) (A) describe emerging technologies and their impact on the small engine technology industry	179–184
(3) (B) identify issues affecting the small engine technology industry related to employment, safety, and environmental issues	8–10, 152–155, 478–480
(3) (C) discuss regulations and laws and their impact on the small engine technology industry	9–10, 152–155
(3) (D) read appropriate written material to stay abreast of current issues impacting the small engine technology industry	9–10, 152–155, 250–254
<b>(4) The student participates in opportunities for leadership development and personal growth. The student is expected to:</b>	
(4) (A) participate in the planning and development of leadership and skill development activities such as conducting effective meetings, team building activities, and strategic planning	487–488
(4) (B) use resources available through an organization such as a career and technical student organization to develop employability skills	479, 487
<b>(5) The student identifies the skills used to maintain and operate a small engine maintenance facility. The student is expected to:</b>	
(5) (A) perform preventative maintenance schedule plans and systems to keep facility, tools, and equipment operating safely and properly	28, 235–254
(5) (B) use the preventative maintenance schedule of the facility, tools, and equipment to determine repair or replacement needs	28, 235–254
(5) (C) complete repair orders and paperwork related to the small engine technology industry to properly document work needed or completed	476
(5) (D) estimate parts and labor costs on repair orders for small engine repair	308

Student Expectations	Textbook Page(s)
(5) (E) locate, read, and interpret service repair information such as small engine schematics, charts, and service-repair manuals and bulletins	250–254
<b>(6) The student applies problem-solving, mathematical, and organizational skills to maintain financial and logistical records. The student is expected to:</b>	
(6) (A) develop project proposals	487
(6) (B) develop and maintain records appropriate to the small engine technology industry	476
(6) (C) describe mathematical formulas used to perform engine calculations such as calculating cylinder volume, engine displacement, combustion chamber volume, compressed head gasket volume, piston and deck height, piston dish volume, dome volume, cylinder volume, compression ratio, and horsepower	127–135
(6) (D) describe mathematical formulas used to perform electrical calculations such as calculating electrical resistance, current, and voltage in engines	65–67, 292–294
(6) (E) apply Ohm's law to small engine electrical circuits using a digital multimeter	65–66, 81
<b>(7) The student uses information technology resources specific to the small engine technology industry to access, manage, integrate, and create information. The student is expected to:</b>	
(7) (A) use personal management software such as email and Internet applications and word-processing, database, spreadsheet, presentation, collaborative, groupware, and virtual meeting software	—
(7) (B) discuss Geographic Information Systems and Global Positioning Systems applications	—
(7) (C) use computer-based equipment	250–254, 480, 482
<b>(8) The student demonstrates an understanding of technical knowledge and skills of small engine technology. The student is expected to:</b>	
(8) (A) identify the use and application of small engines and their components	97–116, 373–398, 403–408, 437–438, 448–449, 460–464
(8) (B) identify the components of electrical-electronic systems	70–79, 189–204, 418–424
(8) (C) demonstrate awareness of engine designs, components, and applications	97–116, 373–398, 403–408, 437–438, 448–449, 460–464
(8) (D) identify and use engine measuring tools and test equipment	28–40, 79–81, 127–135, 247–250

Student Expectations	Textbook Page(s)
(8) (E) use tools used in the operation, maintenance, and repair of small engines	13–40, 235–254, 325–336, 339–353, 373–398, 403–407, 437–438, 448–449
(8) (F) compare and contrast the characteristics of two- and four-cycle engines	89–95, 110, 213–216
(8) (G) identify and discuss the functions of the major small engine components	88–94, 97–116, 460–464
<b>(9) The student applies technical knowledge and skills in simulated or actual work situations. The student is expected to:</b>	
(9) (A) troubleshoot and repair small engines	246–250, 257–274, 308–310, 325–336, 339–353
(9) (B) assess the proper fuel mixtures and analyze the efficiency of various fuels used in small engines	139–142, 146–150, 258–259
(9) (C) distinguish between valve arrangement positions and analyze valve timing with respect to crankshaft rotation	91–92, 111–113, 356–357
(9) (D) perform preventative maintenance and service engine lubrication, cooling, starting, fuel, and ignition systems and associated fluids and filters	142–146, 189–204, 207–220, 223–230, 235–254, 257–274, 285–291, 296–302, 375–380, 385, 421–434, 442–443, 460–461, 464–468
(9) (E) perform routine installations, inspections, adjustments, and maintenance on small engines using testing tools and equipment	235–246, 261–274, 291–302, 308–310, 325–334, 341–343, 355–366
(9) (F) demonstrate knowledge of electrical testing tools and equipment commonly used in small engine maintenance	79–81, 285–302, 327–329
(9) (G) perform measurements using precision instruments	28–40, 339–342
(9) (H) inspect and measure small engine parts for wear tolerances	325–327, 330–334, 341–342
(9) (I) explain the relationship between an electric current and magnetic fields in ignition, charging, and starting systems	68–70, 189–204
(9) (J) analyze the effects of heating and cooling on small engines	192, 223–230, 244–245, 434