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Correlation of *Exploring Drafting* ©2023

to the Texas Essential Knowledge and Skills, Engineering Design and Presentation I

Standard 1A: demonstrate knowledge of how to dress appropriately, speak politely, and conduct oneself in a manner appropriate for the profession and work site;

Breakout	Narrative	Activity
(i) demonstrate knowledge of how to dress appropriately for the profession	**Exploring Drafting 2023 OLS:** 79 (Preparing for a Job Interview)	**Exploring Drafting 2023 OLS:** 79 (Preparing for a Job Interview (Activity))
(ii) demonstrate knowledge of how to speak politely for the profession	**Exploring Drafting 2023 OLS:** 457 (Constructive Criticism)	**Exploring Drafting 2023 OLS:** 457 (Constructive Criticism (Activity))
(iii) demonstrate knowledge of how to conduct oneself in a manner appropriate for the profession	**Exploring Drafting 2023 OLS:** 305 (Attitude on the Job)	**Exploring Drafting 2023 OLS:** 305 (Attitude in the Job (Activity))
(iv) demonstrate knowledge of how to dress appropriately for the work site	**Exploring Drafting 2023 OLS:** 437 (Safety Note), 547 (Staying Safety Conscious, paragraph 2)	**Exploring Drafting 2023 OLS:** 547 (Staying Safety Conscious (Activity))
(v) demonstrate knowledge of how to speak politely for the work site	**Exploring Drafting 2023 OLS:** 457 (Constructive Criticism)	**Exploring Drafting 2023 OLS:** 457 (Constructive Criticism (Activity))
(vi) demonstrate knowledge of how to conduct oneself in a manner appropriate for the work site	**Exploring Drafting 2023 OLS:** 22-23 (Employer Expectations), 22 (Paragraph 2), 22 (Time Management)	**Exploring Drafting 2023 OLS:** 24 (Test your Knowledge #14)

Standard 1B: cooperate, contribute, and collaborate as a member of a group to attain agreement and achieve a collective outcome;

Breakout	Narrative	Activity
(i) cooperate as a member of a group to attain agreement	**Exploring Drafting 2023 OLS:** 417 (Teamwork)	**Exploring Drafting 2023 OLS:** 457 (Constructive Criticism (Activity)), 427 (Communicating about Drafting), 455 (Communicating about Drafting)

Breakout	Narrative	Activity
(ii) cooperate as a member of a group to achieve a collective outcome	**Exploring Drafting 2023 OLS:** 417 (Teamwork)	**Exploring Drafting 2023 OLS:** 295 (Communicating about Drafting), 427 (Communicating about Drafting), 455 (Communicating about Drafting)
(iii) contribute as a member of a group to attain agreement	**Exploring Drafting 2023 OLS:** 417 (Teamwork)	**Exploring Drafting 2023 OLS:** 295 (Communicating about Drafting), 427 (Communicating about Drafting), 455 (Communicating about Drafting)
(iv) contribute as a member of a group to achieve a collective outcome	**Exploring Drafting 2023 OLS:** 417 (Teamwork)	**Exploring Drafting 2023 OLS:** 295 (Communicating about Drafting), 427 (Communicating about Drafting), 455 (Communicating about Drafting)
(v) collaborate as a member of a group to attain agreement	**Exploring Drafting 2023 OLS:** 417 (Teamwork)	**Exploring Drafting 2023 OLS:** 295 (Communicating about Drafting), 427 (Communicating about Drafting), 455 (Communicating about Drafting)
(vi) collaborate as a member of a group to achieve a collective outcome	**Exploring Drafting 2023 OLS:** 417 (Teamwork)	**Exploring Drafting 2023 OLS:** 295 (Communicating about Drafting), 427 (Communicating about Drafting), 455 (Communicating about Drafting)

Standard 1C: present written and oral communication in a clear, concise, and effective manner, including explaining and justifying actions;

Breakout	Narrative	Activity
(i) present written communication in a clear manner, including explaining actions	**Exploring Drafting 2023 OLS:** 194 (Lettering in CAD), 55 (Applying for a Job)	**Exploring Drafting 2023 OLS:** 11 (Developing a Resume (Activity)), 55 (Applying for a Job (Activity)), 239 (Email Etiquette (Activity))

Breakout	Narrative	Activity
(ii) present written communication in a concise manner, including explaining actions	**Exploring Drafting 2023 OLS:** 11 (Developing a Resume), 55 (Applying for a Job)	**Exploring Drafting 2023 OLS:** 11 (Developing a Resume (Activity)), 55 (Applying for a Job (Activity)), 239 (Email Etiquette (Activity))
(iii) present written communication in [an] effective manner, including explaining actions	**Exploring Drafting 2023 OLS:** 194 (Lettering in CAD), 55 (Applying for a Job)	**Exploring Drafting 2023 OLS:** 11 (Developing a Resume (Activity)), 55 (Applying for a Job (Activity)), 239 (Email Etiquette (Activity))
(iv) present written communication in a clear manner, including justifying actions	**Exploring Drafting 2023 OLS:** 239 (Email Etiquette), 55 (Applying for a Job)	**Exploring Drafting 2023 OLS:** 239 (Email Etiquette (Activity)), 55 (Applying for a Job (Activity)),
(v) present written communication in a concise manner, including justifying actions	**Exploring Drafting 2023 OLS:** 11 (Developing a Resume), 55 (Applying for a Job)	**Exploring Drafting 2023 OLS:** 11 (Developing a Resume (Activity)), 55 (Applying for a Job (Activity)),
(vi) present written communication in [an] effective manner, including justifying actions	**Exploring Drafting 2023 OLS:** 11 (Developing a Resume), 55 (Applying for a Job)	**Exploring Drafting 2023 OLS:** 11 (Developing a Resume (Activity)), 55 (Applying for a Job (Activity)),
(vii) present oral communication in a clear manner, including explaining actions	**Exploring Drafting 2023 OLS:** 457 (Constructive Criticism)	**Exploring Drafting 2023 OLS:** 457 (Constructive Criticism (Activity)), 170 (Communicating about Drafting), 455 (Communicating about Drafting)
(viii) present oral communication in a concise manner, including explaining actions	**Exploring Drafting 2023 OLS:** 457 (Constructive Criticism)	**Exploring Drafting 2023 OLS:** 457 (Constructive Criticism (Activity)), 354 (Communicating about Drafting), 439 (Communicating about Drafting)

Breakout	Narrative	Activity
(ix) present oral communication in [an] effective manner, including explaining actions	**Exploring Drafting 2023 OLS:** 457 (Constructive Criticism)	**Exploring Drafting 2023 OLS:** 457 (Constructive Criticism (Activity)), 101 (Communicating about Drafting), 427 (Communicating about Drafting)
(x) present oral communication in a clear manner, including justifying actions	**Exploring Drafting 2023 OLS:** 79 (Preparing for a Job Interview)	**Exploring Drafting 2023 OLS:** 79 (Preparing for a Job Interview (Activity)), 170 (Communicating about Drafting), 396 (Communicating about Drafting)
(xi) present oral communication in a concise manner, including justifying actions	**Exploring Drafting 2023 OLS:** 79 (Preparing for a Job Interview)	**Exploring Drafting 2023 OLS:** 79 (Preparing for a Job Interview (Activity)), 227 (Communicating about Drafting), 511 (Communicating about Drafting)
(xii) present oral communication in [an] effective manner, including justifying actions	**Exploring Drafting 2023 OLS:** 79 (Preparing for a Job Interview)	**Exploring Drafting 2023 OLS:** 79 (Preparing for a Job Interview (Activity)), 354 (Communicating about Drafting), 499 (Communicating about Drafting)

Standard 1D: use time-management skills in prioritizing tasks, following schedules, and tending to goal-relevant activities in a way that optimizes efficiency and results; and

Breakout	Narrative	Activity
(i) use time-management skills in prioritizing tasks in a way that optimizes efficiency	**Exploring Drafting 2023 OLS:** 135 (Being an Efficient Employee)	**Exploring Drafting 2023 OLS:** 135 (Being an Efficient Employee (Activity))
(ii) use time-management skills in following schedules in a way that optimizes efficiency	**Exploring Drafting 2023 OLS:** 135 (Being an Efficient Employee)	**Exploring Drafting 2023 OLS:** 135 (Being an Efficient Employee (Activity))
(iii) use time-management skills in tending to goal-relevant activities in a way that optimizes efficiency	**Exploring Drafting 2023 OLS:** 135 (Being an Efficient Employee)	**Exploring Drafting 2023 OLS:** 135 (Being an Efficient Employee (Activity))
(iv) use time-management skills in prioritizing tasks in a way that optimizes results	**Exploring Drafting 2023 OLS:** 135 (Being an Efficient Employee)	**Exploring Drafting 2023 OLS:** 135 (Being an Efficient Employee (Activity))

Breakout	Narrative	Activity
(v) use time-management skills in following schedules in a way that optimizes results	**Exploring Drafting 2023 OLS:** 135 (Being an Efficient Employee)	**Exploring Drafting 2023 OLS:** 135 (Being an Efficient Employee (Activity))
(vi) use time-management skills in tending to goal-relevant activities in a way that optimizes results	**Exploring Drafting 2023 OLS:** 135 (Being an Efficient Employee)	**Exploring Drafting 2023 OLS:** 135 (Being an Efficient Employee (Activity))

Standard 1E: demonstrate punctuality, dependability, reliability, and responsibility in reporting for duty and performing assigned tasks as directed.

Breakout	Narrative	Activity
(i) demonstrate punctuality in reporting for duty	**Exploring Drafting 2023 OLS:** 22 (Paragraph 2)	**Exploring Drafting 2023 OLS:** 429 (Leadership (Activity))
(ii) demonstrate punctuality in performing assigned tasks as directed	**Exploring Drafting 2023 OLS:** 22 (Paragraph 2)	**Exploring Drafting 2023 OLS:** 429 (Leadership (Activity))
(iii) demonstrate dependability in reporting for duty	**Exploring Drafting 2023 OLS:** 22-23 (Employer Expectations)	**Exploring Drafting 2023 OLS:** 24 (Test your Knowledge #14)
(iv) demonstrate dependability in performing assigned tasks as directed	**Exploring Drafting 2023 OLS:** 22-23 (Employer Expectations)	**Exploring Drafting 2023 OLS:** 24 (Test your Knowledge #14)
(v) demonstrate reliability in reporting for duty	**Exploring Drafting 2023 OLS:** 22 (Employer Expectations)	**Exploring Drafting 2023 OLS:** 24 (Test your Knowledge #14)
(vi) demonstrate reliability in performing assigned tasks as directed	**Exploring Drafting 2023 OLS:** 22 (Employer Expectations)	**Exploring Drafting 2023 OLS:** 24 (Test your Knowledge #14)
(vii) demonstrate responsibility in reporting for duty	**Exploring Drafting 2023 OLS:** 22 (Final Paragraph, Dependable), 22 (Paragraph 2), 135 (Being an Efficient Employee)	**Exploring Drafting 2023 OLS:** 24 (Test your Knowledge #14) 135 (Being an Efficient Employee (Activity))
(viii) demonstrate responsibility in performing assigned tasks as directed	**Exploring Drafting 2023 OLS:** 20 (What Makes a Good Leader?)	**Exploring Drafting 2023 OLS:** 24 (Test your Knowledge #10)

Standard 2A: distinguish between an engineering technician, engineering technologist, and engineer;

Breakout	Narrative	Activity
(i) distinguish between an engineering technician, engineering technologist, and engineer	**Exploring Drafting 2023 OLS:** 12 (Drafting Occupations), 17-18 (Engineers)	**Exploring Drafting 2023 OLS:** 24 (Test Your Knowledge #2), 25 (STEM Activities #1)

Standard 2B: identify employment and career opportunities in engineering and describe the educational requirements for each;

Breakout	Narrative	Activity
(i) identify employment opportunities in engineering	**Exploring Drafting 2023 OLS:** 12-19 (Start at Drafting Occupations), 24 (Summary)	**Exploring Drafting 2023 OLS:** 24 (Test Your Knowledge #2-10), 24 (Applying Your Knowledge #1, 2), 25 (STEM Activities #1, 2)
(ii) identify career opportunities in engineering	**Exploring Drafting 2023 OLS:** 12-19 (Start at Drafting Occupations), 24 (Summary)	**Exploring Drafting 2023 OLS:** 24 (Test Your Knowledge #2-10), 24 (Applying Your Knowledge #1, 2), 25 (STEM Activities #1, 2)
(iii) describe the educational requirements for [employment opportunities in engineering]	**Exploring Drafting 2023 OLS:** 215 (Careers in Drafting: Mechanical Engineer, paragraph 5), 414 (Careers in Drafting: Civil Engineer, paragraph 5), 432 (Careers in Drafting: Aerospace Engineer, paragraph 5), 507 (Careers in Drafting: Electrical and Electronics Engineer, paragraph 5)	**Exploring Drafting 2023 OLS:** 3 (Investigating Education and Training (Activity))
(iv) describe the educational requirements for [career opportunities in engineering]	**Exploring Drafting 2023 OLS:** 215 (Careers in Drafting: Mechanical Engineer, paragraph 5), 414 (Careers in Drafting: Civil Engineer, paragraph 5), 432 (Careers in Drafting: Aerospace Engineer, paragraph 5), 507 (Careers in Drafting: Electrical and Electronics Engineer, paragraph 5)	**Exploring Drafting 2023 OLS:** 25 (Communicating about Drafting)

Standard 2C: investigate and describe the requirements of industry-based certifications in engineering;

Breakout	Narrative	Activity
(i) investigate the requirements of industry-based certifications in engineering	**Exploring Drafting 2023 OLS:** 485 (Lifelong Learning), 3 (Investigating Education and Training)	**Exploring Drafting 2023 OLS:** 485 (Lifelong Learning (Activity)), 3 (Investigating Education and Training (Activity))
(ii) describe the requirements of industry-based certifications in engineering	**Exploring Drafting 2023 OLS:** 485 (Lifelong Learning), 3 (Investigating Education and Training)	**Exploring Drafting 2023 OLS:** 485 (Lifelong Learning (Activity)), 3 (Investigating Education and Training (Activity))

Standard 2D: demonstrate the principles of teamwork related to engineering and technology;

Breakout	Narrative	Activity
(i) demonstrate the principles of teamwork related to engineering	**Exploring Drafting 2023 OLS:** 417 (Teamwork)	**Exploring Drafting 2023 OLS:** 417 (Teamwork (Activity))
(ii) demonstrate the principles of teamwork related to technology	**Exploring Drafting 2023 OLS:** 417 (Teamwork)	**Exploring Drafting 2023 OLS:** 417 (Teamwork (Activity))

Standard 2E: research and describe governmental regulations, including health and safety;

Breakout	Narrative	Activity
(i) research governmental regulations, including health	**Exploring Drafting 2023 OLS:** 73 (Working Safely, paragraph 1), 514 (Building Codes), 413 (Material Safety)	**Exploring Drafting 2023 OLS:** 415 (Applying Your Knowledge #4), 415 (Test Your Knowledge #8)
(ii) research governmental regulations, including safety	**Exploring Drafting 2023 OLS:** 73 (Working Safely, paragraph 1), 514 (Building Codes), 413 (Material Safety)	**Exploring Drafting 2023 OLS:** 415 (Applying Your Knowledge #4), 415 (Test Your Knowledge #8)
(iii) describe governmental regulations, including health	**Exploring Drafting 2023 OLS:** 547 (Staying Safety Conscious)	**Exploring Drafting 2023 OLS:** 547 (Staying Safety Conscious (Activity)), 424 (Industry Standards)
(iv) describe governmental regulations, including safety	**Exploring Drafting 2023 OLS:** 547 (Staying Safety Conscious)	**Exploring Drafting 2023 OLS:** 547 (Staying Safety Conscious (Activity)), 424 (Industry Standards)

Standard 2F: analyze ethical issues related to engineering and technology and incorporate proper ethics in submitted projects;

Breakout	Narrative	Activity
(i) analyze ethical issues related to engineering	**Exploring Drafting 2023 OLS:** 419-421 (Design Guidelines), 426 (Summary)	**Exploring Drafting 2023 OLS:** 426 (Test Your Knowledge #3)

Breakout	Narrative	Activity
(ii) analyze ethical issues related to technology	**Exploring Drafting 2023 OLS:** 407 (Computer Ethics)	**Exploring Drafting 2023 OLS:** 407 (Computer Ethics (Activity))
(iii) incorporate proper ethics in submitted projects	**Exploring Drafting 2023 OLS:** 24 (Last Summary point), 22-23 (Employer Expectations), 407 (Computer Ethics)	**Exploring Drafting 2023 OLS:** 407 (Computer Ethics (Activity))

Standard 2G: demonstrate respect for diversity in the workplace;

Breakout	Narrative	Activity
(i) demonstrate respect for diversity in the workplace	**Exploring Drafting 2023 OLS:** 441 (Respecting Diversity), 22-23 (Employer Expectations)	**Exploring Drafting 2023 OLS:** 441 (Respecting Diversity (Activity))

Standard 2H: identify consequences relating to discrimination, harassment, and inequality;

Breakout	Narrative	Activity
(i) identify consequences relating to discrimination	**Exploring Drafting 2023 OLS:** 513 (Discrimination in the Workplace), 22-23 (Employer Expectations)	**Exploring Drafting 2023 OLS:** 513 (Discrimination in the Workplace (Activity))
(ii) identify consequences relating to harassment	**Exploring Drafting 2023 OLS:** 513 (Discrimination in the Workplace), 22-23 (Employer Expectations)	**Exploring Drafting 2023 OLS:** 513 (Discrimination in the Workplace (Activity))
(iii) identify consequences relating to inequality	**Exploring Drafting 2023 OLS:** 22-23 (Employer Expectations)441 (Respecting Diversity)	**Exploring Drafting 2023 OLS:** 441 (Respecting Diversity (Activity))

Standard 2I: demonstrate effective oral and written communication skills using a variety of software applications and media; and

Breakout	Narrative	Activity
(i) demonstrate effective oral communication skills using a variety of software applications	**Exploring Drafting 2023 OLS:** 187 (Networking), 501 (Cell Phone Etiquette)	**Exploring Drafting 2023 OLS:** 187 (Networking (Activity)), 501 (Cell Phone Etiquette (Activity)), 170 (Communicating about Drafting)
(ii) demonstrate effective oral communication skills using a variety of media	**Exploring Drafting 2023 OLS:** 187 (Networking),	**Exploring Drafting 2023 OLS:** 187 (Networking (Activity)), 295 (Communicating about Drafting), 469 (Communicating about Drafting), 567 (Communicating about Drafting)

Breakout	Narrative	Activity
(iii) demonstrate effective written communication skills using a variety of software applications	**Exploring Drafting 2023 OLS:** 194-195 (Lettering in CAD), 266-267 (Dimensioning in CAD), 153 (Academic Link)	**Exploring Drafting 2023 OLS:** 427 (Communicating about Drafting)
(iv) demonstrate effective written communication skills using a variety of media	**Exploring Drafting 2023 OLS:** 15 (Academic Link)	**Exploring Drafting 2023 OLS:** 415 (Communicating about Drafting), 542 (Communicating about Drafting), 567 (Communicating about Drafting)

Standard 2J: investigate and present on career preparation learning experiences, including job shadowing, mentoring, and apprenticeship training.

Breakout	Narrative	Activity
(i) investigate career preparation learning experiences, including job shadowing	**Exploring Drafting 2023 OLS:** 3 (Investigating Education and Training)	**Exploring Drafting 2023 OLS:** 8 (Applying Your Knowledge #4), 438 (Applying Your Knowledge #4)
(ii) investigate career preparation learning experiences, including mentoring	**Exploring Drafting 2023 OLS:** 3 (Investigating Education and Training) 205 (Joining Organizations)	**Exploring Drafting 2023 OLS:** 25 (Communicating about Drafting)
(iii) investigate career preparation learning experiences, including apprenticeship training	**Exploring Drafting 2023 OLS:** 3 (Investigating Education and Training) 205 (Joining Organizations)	**Exploring Drafting 2023 OLS:** 3 (Investigating Education and Training (Activity))
(iv) present on career preparation learning experiences, including job shadowing	**Exploring Drafting 2023 OLS:** 3 (Investigating Education and Training)	**Exploring Drafting 2023 OLS:** 8 (Applying Your Knowledge #4), 438 (Applying Your Knowledge #4)
(v) present on career preparation learning experiences, including mentoring	**Exploring Drafting 2023 OLS:** 3 (Investigating Education and Training) 205 (Joining Organizations)	**Exploring Drafting 2023 OLS:** 8 (Applying Your Knowledge #4), 25 (Communicating about Drafting)
(vi) present on career preparation learning experiences, including apprenticeship training	**Exploring Drafting 2023 OLS:** 3 (Investigating Education and Training) 370 (Careers in Drafting: Sheet Metal Worker, paragraph 5), 205 (Joining Organizations)	**Exploring Drafting 2023 OLS:** 8 (Applying Your Knowledge #4), 25 (Communicating about Drafting)

Standard 3A: describe the various roles on an engineering team and discuss how teams function;

Breakout	Narrative	Activity
(i) describe the various roles on an engineering team	**Exploring Drafting 2023 OLS:** 429 (Leadership), 417 (Teamwork)	**Exploring Drafting 2023 OLS:** 417 (Teamwork (Activity))
(ii) discuss how [engineering] teams function	**Exploring Drafting 2023 OLS:** 417 (Teamwork), 205 (Joining Organizations)	**Exploring Drafting 2023 OLS:** 417 (Teamwork (Activity))

Standard 3B: apply teamwork to solve problems; and

Breakout	Narrative	Activity
(i) apply teamwork to solve problems	**Exploring Drafting 2023 OLS:** 417 (Teamwork),	**Exploring Drafting 2023 OLS:** 417 (Teamwork (Activity)) 427 (Communicating about Drafting), 439 (Communicating about Drafting)

Standard 3C: serve as both a team leader and member and demonstrate appropriate attitudes while participating in team projects.

Breakout	Narrative	Activity
(i) serve as a team leader	**Exploring Drafting 2023 OLS:** 20-21 (Leadership in Drafting Technology), 20-21 (Getting Leadership Experience), 205 (Joining Organizations)	**Exploring Drafting 2023 OLS:** 295 (Communicating about Drafting)
(ii) serve as a team member	**Exploring Drafting 2023 OLS:** 417 (Teamwork), 205 (Joining Organizations)	**Exploring Drafting 2023 OLS:** 417 (Teamwork (Activity))
(iii) demonstrate appropriate attitudes while participating in team projects	**Exploring Drafting 2023 OLS:** 417 (Teamwork), 205 (Joining Organizations)	**Exploring Drafting 2023 OLS:** 417 (Teamwork (Activity))

Standard 4A: implement project management methodologies, including initiating, planning, executing, monitoring and controlling, and closing a project;

Breakout	Narrative	Activity
(i) implement project management methodologies, including initiating a project	**Exploring Drafting 2023 OLS:** 421–423 (Engineering Design Process), 31 (Industry Connection: Ideation)	**Exploring Drafting 2023 OLS:** 417 (Teamwork (Activity))
(ii) implement project management methodologies, including planning a project	**Exploring Drafting 2023 OLS:** 421–423 (Engineering Design Process), 31 (Industry Connection: Ideation)	**Exploring Drafting 2023 OLS:** 417 (Teamwork (Activity))

Breakout	Narrative	Activity
(iii) implement project management methodologies, including executing a project	**Exploring Drafting 2023 OLS:** 421–423 (Engineering Design Process), 429 (Leadership)	**Exploring Drafting 2023 OLS:** 269 (STEM Activities #1, 2)
(iv) implement project management methodologies, including monitoring and controlling a project	**Exploring Drafting 2023 OLS:** 421–423 (Engineering Design Process), 553 (Industry Connection: Lean Manufacturing)	**Exploring Drafting 2023 OLS:** 439 (Communicating about Drafting), 135 (Being an Efficient Employee (Activity))
(v) implement project management methodologies, including closing a project	**Exploring Drafting 2023 OLS:** 421–423 (Engineering Design Process), 553 (Industry Connection: Lean Manufacturing)	**Exploring Drafting 2023 OLS:** 439 (Communicating about Drafting),

Standard 4B: develop a project schedule and complete work according to established criteria;

Breakout	Narrative	Activity
(i) develop a project schedule	**Exploring Drafting 2023 OLS:** 135 (Being an Efficient Employee)	**Exploring Drafting 2023 OLS:** 135 (Being an Efficient Employee (Activity))
(ii) complete work according to established criteria	**Exploring Drafting 2023 OLS:** 21-22 (What to Expect When You Enter the World of Work), 250 (Academic Link), 13 (Industry Connection: Green Building Technology), 424-425 (Industry Connection: Industry Standards)	**Exploring Drafting 2023 OLS:** 479-483 (Drawing Problems)

Standard 4C: participate in the organization and operation of a real or simulated engineering project; and

Breakout	Narrative	Activity
(i) participate in the organization of a real or simulated engineering project	**Exploring Drafting 2023 OLS:** 421–423 (Engineering Design Process),	**Exploring Drafting 2023 OLS:** 427 (STEM Activities #1, 2)
(ii) participate in the operation of a real or simulated engineering project	**Exploring Drafting 2023 OLS:** 421–423 (Engineering Design Process),	**Exploring Drafting 2023 OLS:** 427 (STEM Activities #1, 2)

Standard 4D: develop a plan for production of an individual product.

Breakout	Narrative	Activity
(i) develop a plan for production of an individual product	**Exploring Drafting 2023 OLS:** 421–423 (Engineering Design Process),	**Exploring Drafting 2023 OLS:** 426 (Applying Your Knowledge)

Standard 5A: master relevant safety tests;

Breakout	Narrative	Activity
(i) master relevant safety tests	**Exploring Drafting 2023 OLS:** 547 (Staying Safety Conscious), 73 (Working Safely)	**Exploring Drafting 2023 OLS:** 547 (Staying Safety Conscious (Activity))

Standard 5B: comply with safety guidelines as described in various manuals, instructions, and regulations;

Breakout	Narrative	Activity
(i) comply with safety guidelines as described in various manuals	**Exploring Drafting 2023 OLS:** 73 (Working Safely), 412 (Safety Note), 547 (Staying Safety Conscious)	**Exploring Drafting 2023 OLS:** 547 (Staying Safety Conscious (Activity)) 415 (Test Your Knowledge #8)
(ii) comply with safety guidelines as described in various instructions	**Exploring Drafting 2023 OLS:** 437 (Safety Note), 547 (Staying Safety Conscious), 412 (Safety Note),	**Exploring Drafting 2023 OLS:** 547 (Staying Safety Conscious (Activity)) 415 (Test Your Knowledge #8)
(iii) comply with safety guidelines as described in various regulations	**Exploring Drafting 2023 OLS:** 437 (Safety Note), 547 (Staying Safety Conscious), 412 (Safety Note),	**Exploring Drafting 2023 OLS:** 547 (Staying Safety Conscious (Activity)) 415 (Test Your Knowledge #8)

Standard 5C: identify and classify hazardous materials and wastes according to Occupational Safety and Health Administration (OSHA) regulations;

Breakout	Narrative	Activity
(i) identify hazardous materials according to Occupational Safety and Health Administration (OSHA) regulations	**Exploring Drafting 2023 OLS:** 413 (Material Safety), 547 (Staying Safety Conscious), 412 (Safety Note),	**Exploring Drafting 2023 OLS:** 415 (Applying Your Knowledge #4), 415 (Test Your Knowledge #8)
(ii) identify hazardous wastes according to Occupational Safety and Health Administration (OSHA) regulations	**Exploring Drafting 2023 OLS:** 413 (Material Safety), 415 (Summary 5th point), 547 (Staying Safety Conscious), 412 (Safety Note),	**Exploring Drafting 2023 OLS:** 415 (Test Your Knowledge #8)
(iii) classify hazardous material according to Occupational Safety and Health Administration (OSHA) regulations	**Exploring Drafting 2023 OLS:** 413 (Material Safety), 415 (Summary 5th point), 547 (Staying Safety Conscious), 412 (Safety Note),	**Exploring Drafting 2023 OLS:** 415 (Test Your Knowledge #8)

Breakout	Narrative	Activity
(iv) classify hazardous wastes according to Occupational Safety and Health Administration (OSHA) regulations	**Exploring Drafting 2023 OLS:** 413 (Material Safety), 415 (Summary 5th point), 547 (Staying Safety Conscious), 412 (Safety Note),	**Exploring Drafting 2023 OLS:** 415 (Test Your Knowledge #8)

Standard 5D: describe the appropriate disposal of hazardous materials and wastes appropriately;

Breakout	Narrative	Activity
(i) describe the appropriate disposal of hazardous materials appropriately	**Exploring Drafting 2023 OLS:** 413 (Material Safety), 415 (Summary 5th point),	**Exploring Drafting 2023 OLS:** 415 (Test Your Knowledge #8)
(ii) describe the appropriate disposal of hazardous wastes appropriately	**Exploring Drafting 2023 OLS:** 413 (Material Safety), 415 (Summary 5th point),	**Exploring Drafting 2023 OLS:** 415 (Test Your Knowledge #8)

Standard 5E: perform maintenance on selected tools, equipment, and machines;

Breakout	Narrative	Activity
(i) perform maintenance on selected tools	**Exploring Drafting 2023 OLS:** 73-74 (Inspecting, Maintaining, and Servicing Drafting Tools), 76 (Summary 8th point)	**Exploring Drafting 2023 OLS:** 77 (Applying Your Knowledge #1)
(ii) perform maintenance on selected equipment	**Exploring Drafting 2023 OLS:** 73-74 (Inspecting, Maintaining, and Servicing Drafting Tools), 76 (Summary 8th point)	**Exploring Drafting 2023 OLS:** 77 (Applying Your Knowledge #1)
(iii) perform maintenance on selected machines	**Exploring Drafting 2023 OLS:** 73-74 (Inspecting, Maintaining, and Servicing Drafting Tools), 76 (Summary 8th point)	**Exploring Drafting 2023 OLS:** 77 (Applying Your Knowledge #1)

Standard 5F: handle and store tools and materials correctly; and

Breakout	Narrative	Activity
(i) handle tools correctly	**Exploring Drafting 2023 OLS:** 56-68 (start with Drawing Board), 68-70 (Scales), 70-72 (Computer-Aided Drafting Equipment), 76 (Summary)	**Exploring Drafting 2023 OLS:** 76 (Test Your Knowledge #1-16)
(ii) handle materials correctly	**Exploring Drafting 2023 OLS:** 413 (Material Safety), 64-66 (Drafting Media), 94 (Attaching a Drawing Sheet to the Board)	**Exploring Drafting 2023 OLS:** 76 (Test Your Knowledge #6), 415 (Test Your Knowledge #4)

Breakout	Narrative	Activity
(iii) store tools correctly	**Exploring Drafting 2023 OLS:** 73-74 (Inspecting, Maintaining, and Servicing Drafting Tools), 59 (Safety Note), 64 (Note), 73 (Creating an Ergonomic Environment)	**Exploring Drafting 2023 OLS:** 77 (Applying Your Knowledge #1)
(iv) store materials correctly	**Exploring Drafting 2023 OLS:** 411 (Microfilm Storage)	**Exploring Drafting 2023 OLS:** 415 (Test Your Knowledge #4), 415 (Applying Your Knowledge #4)

Standard 5G: describe the results of negligent or improper maintenance.

Breakout	Narrative	Activity
(i) describe the results of negligent or improper maintenance	**Exploring Drafting 2023 OLS:** 547 (Staying Safety Conscious), 64 (Note), 57 (Paragraph 1-2)	**Exploring Drafting 2023 OLS:** 547 (Staying Safety Conscious (Activity))

Standard 6A: use single and multi-view projections;

Breakout	Narrative	Activity
(i) use single-view projections	**Exploring Drafting 2023 OLS:** 213 (Primary and Secondary Views), 217-219 (Selecting Views to be Drawn), 158-159 (Creating Sketches)	**Exploring Drafting 2023 OLS:** 171-185 (Drawing Problems), 124-133 (Drawing Problems)
(ii) use multi-view projections	**Exploring Drafting 2023 OLS:** 204-225 (Chapter 9, Multiview Drawings), 226 (Summary), 388-390 (Detail Drawings)	**Exploring Drafting 2023 OLS:** 226 (Test Your Knowledge #1-10), 228-237 (Drawing Problems)

Standard 6B: use orthographic and pictorial views;

Breakout	Narrative	Activity
(i) use orthographic views	**Exploring Drafting 2023 OLS:** 206-210 (Visualizing the Object and Projecting Views), 226 (Summary points #1-3)	**Exploring Drafting 2023 OLS:** 226 (Test Your Knowledge #1-3), 226 (Applying your Knowledge #2)
(ii) use pictorial views	**Exploring Drafting 2023 OLS:** 322-352 (Chapter 13, Pictorials), 348-352 (Drawing Pictorials in CAD), 353 (Summary)	**Exploring Drafting 2023 OLS:** 353 (Test Your Knowledge #1-15), 355-361 (Drawing Problems)

Standard 6C: use auxiliary views;

Breakout	Narrative	Activity
(i) use auxiliary views	**Exploring Drafting 2023 OLS:** 304-313 (Chapter 12, Auxiliary Views), 312 (Drawing in Auxiliary Views in CAD), 314 (Summary)	**Exploring Drafting 2023 OLS:** 314 (Test Your Knowledge #1-7), 316-321 (Drawing Problems)

Standard 6D: use section views;

Breakout	Narrative	Activity
(i) use section views	**Exploring Drafting 2023 OLS:** 278-292 (Chapter 11, Sectional Views), 292 (Drawing Sectional Views in CAD), 293 (Summary)	**Exploring Drafting 2023 OLS:** 293 (Test Your Knowledge #1-12), 296-303 (Drawing Problems)

Standard 6E: use advanced construction techniques;

Breakout	Narrative	Activity
(i) use advanced construction techniques	**Exploring Drafting 2023 OLS:** 157-163 (Parametric Modeling), 163-164 (Assembly Modeling), 362-377 (Chapter 14, Pattern Development)	**Exploring Drafting 2023 OLS:** 184-185 (Drawing Problems), 380-385 (Drawing Problems)

Standard 6F: prepare and revise annotated multi-dimensional production drawings in computer-aided drafting and design to industry standards;

Breakout	Narrative	Activity
(i) prepare annotated multi-dimensional production drawings in computer-aided drafting and design to industry standards	**Exploring Drafting 2023 OLS:** 266-267 (Dimensioning in CAD), 268 (Summary point #11), 225 (Creating Multiview Drawings in CAD), 348-352 (Drawing Pictorials in CAD)	**Exploring Drafting 2023 OLS:** 269 (STEM Activities)
(ii) revise annotated multi-dimensional production drawings in computer-aided drafting and design to industry standards	**Exploring Drafting 2023 OLS:** 266-267 (Dimensioning in CAD), 256-260 (Adapting US Customary Conventions to Metric Dimensioning), 165 (Paragraph 4), 268 (Summary point #11)	**Exploring Drafting 2023 OLS:** 269 (Applying Your Knowledge #1, 2)

Standard 6G: apply best practices for effective file structure and management;

Breakout	Narrative	Activity
(i) apply best practices for effective file structure	**Exploring Drafting 2023 OLS:** 146 (Drawing Setup Functions), 139 (File Management Functions), 169 (Summary point #2)	**Exploring Drafting 2023 OLS:** 169 (Test Your Knowledge # 5, 6)
(ii) apply best practices for effective file management	**Exploring Drafting 2023 OLS:** 155-156 (CAD File Management and Storage Practices), 139 (File Management Functions), 169 (Summary point #2)	**Exploring Drafting 2023 OLS:** 170 (Test Your Knowledge #12)

Standard 6H: use advanced dimensioning techniques;

Breakout	Narrative	Activity
(i) use advanced dimensioning techniques	**Exploring Drafting 2023 OLS:** 266-267 (Dimensioning in CAD), 159-160 (Adding Constraints), 165 (Paragraph 4),	**Exploring Drafting 2023 OLS:** 184-185 (Drawing Problems)

Standard 6I: construct and use basic 3D parametric drawings; and

Breakout	Narrative	Activity
(i) construct basic 3D parametric drawings	**Exploring Drafting 2023 OLS:** 157-163 (Parametric Modeling)	**Exploring Drafting 2023 OLS:** 184-185 (Drawing Problems)
(ii) use basic 3D parametric drawings	**Exploring Drafting 2023 OLS:** 157-163 (Parametric Modeling), 166-167 (CAD/CAM)	**Exploring Drafting 2023 OLS:** 170 (Test Your Knowledge #14-18), 183-184 (Drawing Problems)

Standard 6J: develop and use prototype drawings for presentation.

Breakout	Narrative	Activity
(i) develop prototype drawings for presentation	**Exploring Drafting 2023 OLS:** 167 (Advanced Rendering and Animation Programs), 169 (Summary point #13)	**Exploring Drafting 2023 OLS:** 170 (Test Your Knowledge #18)
(ii) use prototype drawings for presentation	**Exploring Drafting 2023 OLS:** 167 (Advanced Rendering and Animation Programs), 169 (Summary point #13)	**Exploring Drafting 2023 OLS:** 170 (Test Your Knowledge #18)

Standard 7A: describe principles of ideation and apply ideation techniques for an engineering project;

Breakout	Narrative	Activity
(i) describe principles of ideation	**Exploring Drafting 2023 OLS:** 31 (Industry Connection, Ideation), 421–423 (Engineering Design Process)	**Exploring Drafting 2023 OLS:** 426 (Test Your Knowledge #4), 427 (STEM Activities)
(ii) apply ideation techniques for an engineering project	**Exploring Drafting 2023 OLS:** 31 (Industry Connection, Ideation), 421–423 (Engineering Design Process)	**Exploring Drafting 2023 OLS:** 427 (Communicating about Drafting)

Standard 7B: demonstrate critical thinking, identify the solution constraints, and make fact-based decisions;

Breakout	Narrative	Activity
(i) demonstrate critical thinking	**Exploring Drafting 2023 OLS:** 323 (Decision Making and Problem Solving)	**Exploring Drafting 2023 OLS:** 323 (Decision Making and Problem Solving (Activity))
(ii) identify the solution constraints	**Exploring Drafting 2023 OLS:** 323 (Decision Making and Problem Solving)	**Exploring Drafting 2023 OLS:** 323 (Decision Making and Problem Solving (Activity))
(iii) make fact-based decisions	**Exploring Drafting 2023 OLS:** 323 (Decision Making and Problem Solving)	**Exploring Drafting 2023 OLS:** 323 (Decision Making and Problem Solving (Activity))

Standard 7C: develop or improve a product using rational thinking;

Breakout	Narrative	Activity
(i) develop or improve a product using rational thinking	**Exploring Drafting 2023 OLS:** 421–423 (Engineering Design Process)	**Exploring Drafting 2023 OLS:** 427 (STEM Activities)

Standard 7D: apply decision-making strategies when developing solutions;

Breakout	Narrative	Activity
(i) apply decision-making strategies when developing solutions	**Exploring Drafting 2023 OLS:** 323 (Decision Making and Problem Solving)	**Exploring Drafting 2023 OLS:** 323 (Decision Making and Problem Solving (Activity))

Standard 7E: use an engineering notebook to record prototypes, corrections, and/or mistakes in the design process; and

Breakout	Narrative	Activity
(i) use an engineering notebook to record prototypes in the design process	**Exploring Drafting 2023 OLS:** 18 (STEM Connection: Engineer's Notebook), 363 (Creativity and Brainstorming)	**Exploring Drafting 2023 OLS:** 363 (Creativity and Brainstorming (Activity)), 427 (STEM Activities)
(ii) use an engineering notebook to record corrections in the design process	**Exploring Drafting 2023 OLS:** 18 (STEM Connection: Engineer's Notebook), 363 (Creativity and Brainstorming)	**Exploring Drafting 2023 OLS:** 363 (Creativity and Brainstorming (Activity)), 427 (STEM Activities)
(iii) use an engineering notebook to record mistakes in the design process	**Exploring Drafting 2023 OLS:** 18 (STEM Connection: Engineer's Notebook), 363 (Creativity and Brainstorming)	**Exploring Drafting 2023 OLS:** 363 (Creativity and Brainstorming (Activity)), 427 (STEM Activities)

Standard 7F: use an engineering notebook or portfolio to record the final design, construction, and manipulation of finished projects.

Breakout	Narrative	Activity
(i) use an engineering notebook or portfolio to record the final design of finished projects	**Exploring Drafting 2023 OLS:** 18 (STEM Connection: Engineer's Notebook), 421–423 (Engineering Design Process)	**Exploring Drafting 2023 OLS:** 439 (Communicating about Drafting), 427 (Communicating about Drafting)
(ii) use an engineering notebook or portfolio to record the construction of finished projects	**Exploring Drafting 2023 OLS:** 18 (STEM Connection: Engineer's Notebook), 421–423 (Engineering Design Process)	**Exploring Drafting 2023 OLS:** 439 (Communicating about Drafting), 427 (Communicating about Drafting)
(iii) use an engineering notebook or portfolio to record the manipulation of finished projects	**Exploring Drafting 2023 OLS:** 18 (STEM Connection: Engineer's Notebook), 421–423 (Engineering Design Process)	**Exploring Drafting 2023 OLS:** 439 (Communicating about Drafting), 427 (Communicating about Drafting)

Standard 8A: design components using a variety of technologies;

Breakout	Narrative	Activity
(i) design components using a variety of technologies	**Exploring Drafting 2023 OLS:** 164-165 (Creating Part and Assembly Drawings), 437 (Industry Connection, 3D Printing), 509 (CAD Applications in Electrical and Electronics Drafting), 539 (CAD in Architecture)	**Exploring Drafting 2023 OLS:** 542 (STEM Activities #1, 3)

Standard 8B: investigate the applications of different types of computer-aided drafting and design software for various engineering problems; and

Breakout	Narrative	Activity
(i) investigate the applications of different types of computer-aided drafting and design software for various engineering problems	**Exploring Drafting 2023 OLS:** 166 (Advanced CAD Systems), 509 (CAD Applications in Electrical and Electronics Drafting), 539 (CAD in Architecture) 451 (CAD-Generated Mapping)	**Exploring Drafting 2023 OLS:** 170 (Applying Your Knowledge #1-2)

Standard 8C: use multiple software applications for concept presentations.

Breakout	Narrative	Activity
(i) use multiple software applications for concept presentations	**Exploring Drafting 2023 OLS:** 348-352 (Drawing Pictorials in CAD), 466 (Computer-Generated Graphs and Charts), 451 (CAD-Generated Mapping)	**Exploring Drafting 2023 OLS:** 354 (Applying Your Knowledge #1), 455 (Communicating about Drafting)

Standard 9A: interpret engineering drawings;

Breakout	Narrative	Activity
(i) interpret engineering drawings	**Exploring Drafting 2023 OLS:** 386-395 (Chapter 15, Working Drawings), 472-473 (Begin with first paragraph), 504-505 (Types of Diagrams Used in Drafting), 520-529 (Types of Plans)	**Exploring Drafting 2023 OLS:** 396 (Applying Your Knowledge #1-3)

Standard 9B: identify areas where quality, reliability, and safety can be designed into a product;

Breakout	Narrative	Activity
(i) identify areas where quality can be designed into a product	**Exploring Drafting 2023 OLS:** 421 ("Made with Quality"), 426 (Summary point #3)	**Exploring Drafting 2023 OLS:** 426 (Test Your Knowledge #3), 427 (Communicating about Drafting)
(ii) identify areas where reliability can be designed into a product	**Exploring Drafting 2023 OLS:** 420 ("Reliable"), 426 (Summary point #3)	**Exploring Drafting 2023 OLS:** 426 (Test Your Knowledge #3), 427 (Communicating about Drafting)
(iii) identify areas where safety can be designed into a product	**Exploring Drafting 2023 OLS:** 420 ("Safe"), 426 (Summary point #3)	**Exploring Drafting 2023 OLS:** 426 (Test Your Knowledge #3), 427 (Communicating about Drafting)

Standard 9C: modify a product design to meet a specified need;

Breakout	Narrative	Activity
(i) modify a product design to meet a specified need	**Exploring Drafting 2023 OLS:** 31 (Industry Connection, Ideation), 421–423 (Engineering Design Process)	**Exploring Drafting 2023 OLS:** 77 (STEM Activities #1)

Standard 9D: produce engineering drawings to industry standards; and

Breakout	Narrative	Activity
(i) produce engineering drawings to industry standards	**Exploring Drafting 2023 OLS:** 80-83 (Line Conventions), 262-263 (Geometric Dimensioning and Tolerancing (GD&T)	**Exploring Drafting 2023 OLS:** 100-101 (Test Your Knowledge #1-15), 228-237 (Drawing Problems), 396 (STEM Activities #2)

Standard 9E: describe potential patents and the patenting process.

Breakout	Narrative	Activity
(i) describe potential patents	**Exploring Drafting 2023 OLS:** 31 (Industry Connection, Paragraph 2)	**Exploring Drafting 2023 OLS:** 44 (STEM Activities #2)
(ii) describe the patenting process	**Exploring Drafting 2023 OLS:** 31 (Industry Connection, Paragraph 2)	**Exploring Drafting 2023 OLS:** 44 (STEM Activities #2)

Standard 10A: identify and describe the steps needed to produce a prototype;

Breakout	Narrative	Activity
(i) identify the steps needed to produce a prototype	**Exploring Drafting 2023 OLS:** 423, 534-535 (Planning a Home)	**Exploring Drafting 2023 OLS:** 427 (STEM Activities #1), 439 (Communicating about Drafting)
(ii) describe the steps needed to produce a prototype	**Exploring Drafting 2023 OLS:** 423, 534-535 (Planning a Home)	**Exploring Drafting 2023 OLS:** 427 (STEM Activities #1), 439 (Communicating about Drafting)

Standard 10B: identify and use appropriate tools, equipment, machines, and materials to produce the prototype; and

Breakout	Narrative	Activity
(i) identify appropriate tools to produce the prototype	**Exploring Drafting 2023 OLS:** 562-563 (Additive Manufacturing)	**Exploring Drafting 2023 OLS:** 427 (STEM Activities #1), 439 (Communicating about Drafting)
(ii) identify appropriate equipment to produce the prototype	**Exploring Drafting 2023 OLS:** 562-563 (Additive Manufacturing)	**Exploring Drafting 2023 OLS:** 427 (STEM Activities #1), 439 (Communicating about Drafting)
(iii) identify appropriate machines to produce the prototype	**Exploring Drafting 2023 OLS:** 564 (Fused Deposition Modeling (FDM)), 564 (Stereolithography)	**Exploring Drafting 2023 OLS:** 427 (STEM Activities #1), 439 (Communicating about Drafting)
(iv) identify appropriate materials to produce the prototype	**Exploring Drafting 2023 OLS:** 418 (STEM Connection, Studying the Design of Materials), 436-437 (Constructing Models)	**Exploring Drafting 2023 OLS:** 427 (STEM Activities #1), 439 (Communicating about Drafting)
(v) use appropriate tools to produce the prototype	**Exploring Drafting 2023 OLS:** 562-563 (Additive Manufacturing)	**Exploring Drafting 2023 OLS:** 427 (STEM Activities #1), 439 (Communicating about Drafting)
(vi) use appropriate equipment to produce the prototype	**Exploring Drafting 2023 OLS:** 562-563 (Additive Manufacturing)	**Exploring Drafting 2023 OLS:** 427 (STEM Activities #1), 542 (STEM Activities #1, 2)
(vii) use appropriate machines to produce the prototype	**Exploring Drafting 2023 OLS:** 564 (Fused Deposition Modeling (FDM)), 564 (Stereolithography)	**Exploring Drafting 2023 OLS:** 427 (STEM Activities #1),
(viii) use appropriate materials to produce the prototype	**Exploring Drafting 2023 OLS:** 418 (STEM Connection, Studying the Design of Materials), 436-437 (Constructing Models)	**Exploring Drafting 2023 OLS:** 427 (STEM Activities #1), 438 (STEM Activities #1, 2)

Standard 10C: present the prototype using a variety of media.

Breakout	Narrative	Activity
(i) present the prototype using a variety of media	**Exploring Drafting 2023 OLS:** 433-436 (How Models, Mockups, and Prototypes Are Used)	**Exploring Drafting 2023 OLS:** 438 (STEM Activities #1), 439 (Communicating about Drafting), 427 (Communicating about Drafting)

Standard 11A: identify and define an engineering problem;

Breakout	Narrative	Activity
(i) identify an engineering problem	**Exploring Drafting 2023 OLS:** 31 (Industry Connection, Ideation, paragraph 1), 421–423 (Engineering Design Process)	**Exploring Drafting 2023 OLS:** 427 (Communicating about Drafting), 426 (Test Your Knowledge #4)
(ii) define an engineering problem	**Exploring Drafting 2023 OLS:** 31 (Industry Connection, Ideation), 421–423 (Engineering Design Process)	**Exploring Drafting 2023 OLS:** 427 (Communicating about Drafting), 426 (Test Your Knowledge #4)

Standard 11B: formulate goals, objectives, and requirements to solve an engineering problem;

Breakout	Narrative	Activity
(i) formulate goals to solve an engineering problem	**Exploring Drafting 2023 OLS:** 419-421 (Design Guidelines), 421–423 (Engineering Design Process), 31 (Industry Connection, Ideation),	**Exploring Drafting 2023 OLS:** 427 (Communicating about Drafting), 426 (Test Your Knowledge #4)
(ii) formulate objectives to solve an engineering problem	**Exploring Drafting 2023 OLS:** 419-421 (Design Guidelines), 421–423 (Engineering Design Process), 31 (Industry Connection, Ideation),	**Exploring Drafting 2023 OLS:** 427 (Communicating about Drafting), 426 (Test Your Knowledge #4)
(iii) formulate requirements to solve an engineering problem	**Exploring Drafting 2023 OLS:** 419-421 (Design Guidelines), 421–423 (Engineering Design Process), 31 (Industry Connection, Ideation),	**Exploring Drafting 2023 OLS:** 427 (Communicating about Drafting), 426 (Test Your Knowledge #4)

Standard 11C: determine the design parameters such as materials, personnel, resources, funding, manufacturability, feasibility, and time associated with an engineering problem;

Breakout	Narrative	Activity
(i) determine the design parameters associated with an engineering problem	**Exploring Drafting 2023 OLS:** 162-163 (Design Intent), 419-421 (Design Guidelines), 421–423 (Engineering Design Process),	**Exploring Drafting 2023 OLS:** 426 (Test Your Knowledge #3) 184-185 (Drawing Problems)

Standard 11D: establish and evaluate constraints, including health, safety, social, environmental, ethical, political, regulatory, and legal, pertaining to a problem;

Breakout	Narrative	Activity
(i) establish constraints, including health, pertaining to a problem	**Exploring Drafting 2023 OLS:** 424 (Industry Connection: Industry Standards), 514 (Building Codes) 13 (Industry Connection: Green Building Technology, “Indoor Environmental Quality”)	**Exploring Drafting 2023 OLS:** 541 (Test Your Knowledge #3)
(ii) establish constraints, including safety, pertaining to a problem	**Exploring Drafting 2023 OLS:** 424 (Industry Connection: Industry Standards), 420 ("Safe")	**Exploring Drafting 2023 OLS:** 77 (STEM Activities #1)
(iii) establish constraints, including social, pertaining to a problem	**Exploring Drafting 2023 OLS:** 23	**Exploring Drafting 2023 OLS:** 25 (Applying Your Knowledge #17)
(iv) establish constraints, including environmental, pertaining to a problem	**Exploring Drafting 2023 OLS:** 13 (Industry Connection: Green Building Technology)	**Exploring Drafting 2023 OLS:** 13 (Industry Connection: Green Building Technology Discussion Questions)
(v) establish constraints, including ethical, pertaining to a problem	**Exploring Drafting 2023 OLS:** 424 (Industry Connection: Industry Standards)	**Exploring Drafting 2023 OLS:** 541 (Test Your Knowledge #3)
(vi) establish constraints, including political, pertaining to a problem	**Exploring Drafting 2023 OLS:** 424 (Industry Connection: Industry Standards)	**Exploring Drafting 2023 OLS:** 541 (Test Your Knowledge #3)
(vii) establish constraints, including regulatory, pertaining to a problem	**Exploring Drafting 2023 OLS:** 424 (Industry Connection: Industry Standards)	**Exploring Drafting 2023 OLS:** 541 (Test Your Knowledge #3)
(viii) establish constraints, including legal, pertaining to a problem	**Exploring Drafting 2023 OLS:** 424 (Industry Connection: Industry Standards)	**Exploring Drafting 2023 OLS:** 541 (Test Your Knowledge #3)
(ix) evaluate constraints, including health, pertaining to a problem	**Exploring Drafting 2023 OLS:** 424 (Industry Connection: Industry Standards) 514 (Building Codes) 13 (Industry Connection: Green Building Technology, “Indoor Environmental Quality”)	**Exploring Drafting 2023 OLS:** 541 (Test Your Knowledge #3)

Breakout	Narrative	Activity
(x) evaluate constraints, including safety, pertaining to a problem	**Exploring Drafting 2023 OLS:** 424 (Industry Connection: Industry Standards) 420 ("Safe")	**Exploring Drafting 2023 OLS:** 77 (STEM Activities #1)
(xi) evaluate constraints, including social, pertaining to a problem	**Exploring Drafting 2023 OLS:** 23	**Exploring Drafting 2023 OLS:** 25 (Applying Your Knowledge #3)
(xii) evaluate constraints, including environmental, pertaining to a problem	**Exploring Drafting 2023 OLS:** 13 (Industry Connection: Green Building Technology)	**Exploring Drafting 2023 OLS:** 13 (Industry Connection: Green Building Technology Discussion Questions)
(xiii) evaluate constraints, including ethical, pertaining to a problem	**Exploring Drafting 2023 OLS:** 424 (Industry Connection: Industry Standards)	**Exploring Drafting 2023 OLS:** 541 (Test Your Knowledge #3)
(xiv) evaluate constraints, including political, pertaining to a problem	**Exploring Drafting 2023 OLS:** 424 (Industry Connection: Industry Standards)	**Exploring Drafting 2023 OLS:** 541 (Test Your Knowledge #3)
(xv) evaluate constraints, including regulatory, pertaining to a problem	**Exploring Drafting 2023 OLS:** 424 (Industry Connection: Industry Standards)	**Exploring Drafting 2023 OLS:** 541 (Test Your Knowledge #3)
(xvi) evaluate constraints, including legal, pertaining to a problem	**Exploring Drafting 2023 OLS:** 424 (Industry Connection: Industry Standards)	**Exploring Drafting 2023 OLS:** 541 (Test Your Knowledge #3)

Standard 11E: identify or create alternative solutions to a problem using a variety of techniques such as brainstorming, reverse engineering, and researching engineered and natural solutions;

Breakout	Narrative	Activity
(i) identify or create alternative solutions to a problem using a variety of techniques	**Exploring Drafting 2023 OLS:** 31 (Industry Connection, Ideation), 323 (Decision Making and Problem Solving)	**Exploring Drafting 2023 OLS:** 295 (Communicating about Drafting)

Standard 11F: test and evaluate proposed solutions using tools and methods such as models, prototypes, mock-ups, simulations, critical design review, statistical analysis, or experiments; and

Breakout	Narrative	Activity
(i) test proposed solutions using tools	**Exploring Drafting 2023 OLS:** 433-436 (How Models, Mockups, and Prototypes Are Used), 554 (Paragraph 1) 430 (Paragraph 2)	**Exploring Drafting 2023 OLS:** 438 (STEM Activities #1, 2)
(ii) test proposed solutions using methods	**Exploring Drafting 2023 OLS:** 433-436 (How Models, Mockups, and Prototypes Are Used), 430 (Paragraph 2)	**Exploring Drafting 2023 OLS:** 438 (STEM Activities #1, 2)

Breakout	Narrative	Activity
(iii) evaluate proposed solutions using tools	**Exploring Drafting 2023 OLS:** 433-436 (How Models, Mockups, and Prototypes Are Used), 554 (Paragraph 1) 430 (Paragraph 2)	**Exploring Drafting 2023 OLS:** 439 (Communicating about Drafting)
(iv) evaluate proposed solutions using methods	**Exploring Drafting 2023 OLS:** 433-436 (How Models, Mockups, and Prototypes Are Used), 430 (Paragraph 2)	**Exploring Drafting 2023 OLS:** 439 (Communicating about Drafting)

Standard 11G: apply structured techniques such as a decision tree, design matrix, or cost-benefit analysis to select and justify a preferred solution to a problem.

Breakout	Narrative	Activity
(i) apply structured techniques to select a preferred solution to a problem	**Exploring Drafting 2023 OLS:** 421–423 (Engineering Design Process), 31 (Industry Connection: Ideation, Paragraph 5)	**Exploring Drafting 2023 OLS:** 427 (STEM Activities #1, 2)
(ii) apply structured techniques to justify a preferred solution to a problem	**Exploring Drafting 2023 OLS:** 421–423 (Engineering Design Process), 31 (Industry Connection: Ideation, Paragraph 5)	**Exploring Drafting 2023 OLS:** 427 (Communicating about Drafting)