

Lesson 2	Resource 2Q	Answer Key Analysis (page 1)
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Short Reading – Answer Key Analysis		
	Answer	Location of Answer
1	They require reading about the topic.	P2 Bullet—Introduction: "Provide a brief background on the topic, what is known about the topic (do your research!)" P2 Bullet—References: "Include the sources of your information . . ."
2	results	P2 Bullet—References: "You may have cited a source in your methods section, but it would be uncommon to find sources in your results."
3	Introduction - State your hypothesis. Method - Talk about how information was gathered. Results - Clearly show the observed data. Materials - Specify what was used in your experiment.	P2 Bullet—Introduction: "You must also include a hypothesis . . ." P2 Bullet—Method: "Include what data was collected and how it was collected." P2 Bullet—Results: "Present your data in tables and charts. Use the American Chemical Society Style Guide to format your tables." P2 Bullet—Materials: "Indicate the equipment and supplies used."

Lesson 2	Resource 2Q	Answer Key Analysis (page 2)
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Long Reading – Answer Key Analysis		
	Answer	Location of Answer
1	Engineering Ethics	P1 S5: “. . . Petroski titled his book To Err is Human: The Role of Failure in Successful Designs to highlight the truth that engineering failures happen; what matters most is to learn from them.” (infer)
2	the tendency of making errors	P1 S5: “. . . that engineering failures happen”
3	the Mars Climate Orbiter case failure	P4 S2: “The Mars Climate Orbiter (MCO), a robotic space probe launched in 1998, is a case frequently taught in engineering for its huge loss—328 million dollars . . .”
4	forensic engineer	P1 S6: “The attention around engineering failures and disasters has brought new courses and professionals to the field, such as failure analysis and forensic engineers.”
5	- poor weather at the construction site - miscommunication between stakeholders - failure to comply with established codes of practice	P2 S2: “A number of factors, including violation of codes of practice, miscommunication, extreme weather conditions during construction, or questionable engineering ethics, can come into play.” P3 S6: “Multiple causes were identified in the investigation; the largest one was associated with a lack of communication between two stakeholders . . .”
6	It was found in line with the study by Matousek and Schneider.	P2 S3: “Based on the analysis of 800 cases of structural failure before 1979, Miroslav Matousek and Jörg Schneider, two researchers at the Swiss Federal Institute of Technology, found that human factors constituted the main causes of failure.” P2 S7: “In terms of causes, 88% of cases were related to ‘human shortcomings’ . . .”
7	“88,” “eighty eight,” or “eighty-eight”	P2 S7: “In terms of causes, 88% of cases were related to ‘human shortcomings’ . . .”
8	complete and accurate communication	P3 S6: “Multiple causes were identified in the investigation; the largest one was associated with a lack of communication between two stakeholders: the designer and the steel fabricator.” P3 S7: “The fabricator questioned an original structural design . . .” P3 S11: “This proposal was approved by the designer—over the phone—without any review or re-calculations.”
9	Consistent measurement units should be maintained.	P4 S2–3: “The Mars Climate Orbiter (MCO), a robotic space probe launched in 1998, is a case frequently taught in engineering for its huge loss—328 million dollars—caused by ‘the failed translation of imperial units into metric units’ in the trajectory calculator. The orbital insertion of the MCO was miscalculated due to a confusion of the two measurement systems . . .”
10	They raised awareness of engineering ethics.	P5 S2: “The Quebec Bridge, which collapsed twice . . . brought engineering ethics to the forefront of the profession and the industry in North America.”
11	to remind them of the paramount responsibility of public safety	P5 S6: “. . . a Canadian-trained engineer may know what the iron ring symbolizes—the responsibility that comes with the profession and the paramount importance of the public’s health and safety.”