

Appendix C: TOSLS Skills and Answer Key (28Qs)

SKILL	DESCRIPTION	Question	Correct Answer
1 (3 Qs)	Identify a valid scientific argument (e.g., recognizing when scientific evidence supports a hypothesis)	1	B
		8	D
		11	B
2 (5 Qs)	Conduct an effective literature search (e.g. Evaluate the validity of sources (e.g., websites, peer reviewed journals) and distinguish between types of sources)	10	B
		12	C
		17	B
		22	C
		26	C
3 (3 Qs)	Evaluate the use and misuse of scientific information (e.g. Recognize a valid scientific course of action, distinguish the appropriate use of science to make societal decisions)	5	D
		9	B
		27	B
4 (4 Qs)	Understand elements of research design and how they impact scientific findings/conclusions (e.g. identify strengths and weaknesses in research related to bias, sample size, randomization, experimental control)	4	C
		13	D
		14	C
		25	B
5 (1Q)	Make a graph	15	D
6 (4 Qs)	Read and interpret graphical representations of data	2	C
		6	C
		7	A
		18	A
7 (3 Qs)	Solve problems using quantitative skills, including probability and statistics (e.g calculate means, probabilities, percentages, frequencies)	16	B
		20	B
		23	D
8 (3 Qs)	Understand and interpret basic statistics (e.g. interpret error bars, understand the need for statistics)	3	B
		19	C
		24	D
9 (2 Qs)	Justify inferences, predictions, and conclusions based on quantitative data	21	C
		28	B