FOR GRADUATE AND CREDENTIAL PROGRAMS: THIS TEMPLATE REFERS TO SAC STATE BACCALAUREATE LEARNING GOALS. PLEASE IGNORE THESE REFERENCES IN YOUR REPORT.

Question 1: Program Learning Outcomes

Q1.1. Which of the following Program Learning Outcomes (PLOs) and Sac State Baccalaureate Learning Goals (BLGs) **did you assess in 2014-2015**? **[Check all that apply]**

- [ ] 1. Critical thinking
- [ ] 2. Information literacy
- [ ] 3. Written communication
- [ ] 4. Oral communication
- [ ] 5. Quantitative literacy
- [ ] 6. Inquiry and analysis
- [ ] 7. Creative thinking
- [ ] 8. Reading
- [ ] 9. Team work
- [ ] 10. Problem solving
- [ ] 11. Civic knowledge and engagement
- [ ] 12. Intercultural knowledge and competency
- [ ] 13. Ethical reasoning
- [ ] 14. Foundations and skills for lifelong learning
- [ ] 15. Global learning
- [ ] 16. Integrative and applied learning
- [ ] 17. Overall competencies for GE Knowledge
- [X] 18. Overall competencies in the major/discipline
- [ ] 19. Other, specify any PLOs that were assessed in 2014-2015 but not included above:
  - a.
  - b.
  - c.

Q1.3. Are your PLOs closely aligned with the mission of the university?

- [X] 1. Yes
- [ ] 2. No
- [ ] 3. Don't know

Q1.4. Is your program externally accredited (other than through WASC)?

- [ ] 1. Yes
- [X] 2. No (Go to **Q1.5**)
- [ ] 3. Don't know (Go to **Q1.5**)

Q1.4.1. If the answer to Q1.4 is yes, are your PLOs closely aligned with the mission/goals/outcomes of the accreditation agency?

- [ ] 1. Yes
- [ ] 2. No
- [ ] 3. Don't know

Q1.5. Did your program use the *Degree Qualification Profile* (DQP) to develop your PLO(s)?

- [X] 1. Yes
- [ ] 2. No, but I know what the DQP is
- [ ] 3. No, I don't know what the DQP is.
- [ ] 4. Don't know

Q1.6. Did you use action verbs to make each PLO measurable (See Attachment I)? yes

Q1.2. Please provide more detailed background information about **EACH PLO** you checked above and other information such as how your specific PLOs were **explicitly** linked to the Sac State BLGs:

Students will master a set of fundamental geologic concepts essential to understanding and solving geologic problems

All three of our Bachelor's programs (BS in Geology, BA in Geology, BA in Earth Science) share this PLO. This year we assessed a different PLO in our BS program, and submitted a separate report for that program. We also assessed this common PLO, and it was the only assessment we did for our two BA programs. Our results include students from all three programs, but we have chosen to report the results in this document for the BA programs.

Q1.2.1. Do you have rubrics for your PLOs?

- [ ] 1. Yes, for all PLOs
- [X] 2. Yes, but for some PL

	☐ PLOs 3. No rubrics for PLOs N/A, other (please specify): ☐

IN QUESTIONS 2 THROUGH 5, REPORT IN DETAIL ON ONE PLO THAT YOU ASSESSED IN 2014-2015

Question 2: Standard of Performance for the selected PLO

Q 2.1. Specify one PLO here as an example to illustrate how you conducted assessment (be sure you checked the correct box for this PLO in Q1.1): Students will master a set of fundamental geologic concepts essential to understanding and solving geologic problems	**Q2.2.** Has the program developed or adopted **explicit** standards of performance for this PLO? ☒ 1. Yes ☐ 2. No ☐ 3. Don't know ☐ 4. N/A

Q2.3. <u>Please provide the rubric(s)</u> and standard of performance that you have developed for this PLO here or in the appendix: **[Word limit: 300]**

The PLO is measured with an exam. We expect 70% of the students to give correct answers on each item of the assessment.

Q2.4. Please indicate the category in which the selected PLO falls into.

	1. Critical thinking
	2. Information literacy
	3. Written communication
	4. Oral communication
	5. Quantitative literacy
	6. Inquiry and analysis
	7. Creative thinking
	8. Reading
	9. Team work
	10. Problem solving
	11. Civic knowledge and engagement
	12. Intercultural knowledge and competency
	13. Ethical reasoning
	14. Foundations and skills for lifelong learning
	15. Global learning
	16. Integrative and applied learning
	17. Overall competencies for GE Knowledge
X	18. Overall competencies in the major/discipline
	19. Other:

Please indicate where you have published the PLO, the standard of performance, and the rubric that measures the PLO:	**Q2.5**		**Q2.7**
	(1) PLO		**(3) Rubrics**
1. In **SOME** course syllabi/assignments in the program that address the PLO	X		
2. In **ALL** course syllabi/assignments in the program that address the PLO			
3. In the student handbook/advising handbook			
4. In the university catalogue			
5. On the academic unit website or in newsletters			
6. In the assessment or program review reports, plans, resources or activities	X		
7. In new course proposal forms in the department/college/university			
8. In the department/college/university's strategic plans and other planning documents			
9. In the department/college/university's budget plans and other resource allocation documents			
10. Other, specify:			

Question 3: Data Collection Methods and Evaluation of Data Quality for the Selected PLO

Q3.1. Was assessment data/evidence **collected** for the selected PLO in 2014-2015?

X	1. Yes
	2. No (Skip to **Q6**)
	3. Don't know (Skip to **Q6**)
	4. N/A (Skip to **Q6**)

Q3.2. If yes, was the data **scored/evaluated** for this PLO in 2014-2015?

X	1. Yes
	2. No (Skip to **Q6**)
	3. Don't know (Skip to **Q6**)
	4. N/A (Skip to **Q6**)

Q3.1A. How many assessment tools/methods/measures **in total** did you use to assess this PLO?
1

Q3.2A Please describe how you collected the assessment data for the selected PLO. For example, in what course(s) or by what means were data collected (see Attachment II)? **[Word limit: 300]**

We administer a Student Knowledge Inventory to all students enrolled in one junior-level course and one senior-level course each Fall. The questions are taken from a pool of questions that rotate from year to year but cover the same content areas.

Q3A: Direct Measures (key assignments, projects, portfolios)

Q3.3. Were direct measures [key assignments, projects, portfolios, etc.] used to assess this PLO?
- [X] 1. Yes
- [ ] 2. No (Go to **Q3.7**)
- [ ] 3. Don't know (Go to **Q3.7**)

Q3.3.1. Which of the following direct measures were used? **[Check all that apply]**
- [ ] 1. Capstone projects (including theses, senior theses), courses, or experiences
- [ ] 2. Key assignments from required classes in the program
- [ ] 3. Key assignments from elective classes
- [ ] 4. Classroom based performance assessments such as simulations, comprehensive exams, critiques
- [ ] 5. External performance assessments such as internships or other community based projects
- [ ] 6. E-Portfolios
- [ ] 7. Other portfolios
- [X] 8. Other measure. Specify: Test that is not part of a course

Q3.3.2. Please attach the direct measure you used to collect data.

Appendix I

Q3.4. How was the data evaluated? **[Select only one]**
- [ ] 1. **No** rubric is used to interpret the evidence (Go to **Q3.5**)
- [ ] 2. Used rubric developed/modified by the faculty who teaches the class
- [ ] 3. Used rubric developed/modified by a group of faculty
- [ ] 4. Used rubric pilot-tested and refined by a group of faculty
- [ ] 5. The VALUE rubric(s)
- [ ] 6. Modified VALUE rubric(s)
- [X] 7. Used other means. Specify: % scored on questions

Q3.4.1. Was the direct measure (e.g. assignment, thesis, etc.) aligned directly and explicitly with the PLO?
- [X] 1. Yes
- [ ] 2. No
- [ ] 3. Don't know
- [ ] 4. N/A

Q3.4.2. Was the direct measure (e.g. assignment, thesis, etc.) aligned directly and explicitly with the rubric?
- [ ] 1. Yes
- [ ] 2. No
- [ ] 3. Don't know
- [X] 4. N/A no rubric

Q3.4.3. Was the rubric aligned directly and explicitly with the PLO?
- [ ] 1. Yes
- [ ] 2. No
- [ ] 3. Don't know
- [X] 4. N/A no rubric

Q3.5. How many faculty members participated in planning the assessment data collection of the selected PLO?

All (6) wrote the questions, 2 administered it, 1 scored it, all (6) analyzed it

Q3.5.1. If the data was evaluated by multiple scorers, was there a norming process (a procedure to make sure everyone was scoring similarly)?
- [ ] 1. Yes
- [ ] 2. No
- [ ] 3. Don't know

Q3.6. How did you **select** the sample of student work [papers, projects, portfolios, etc.]?

All students in two selected courses took the test.

Q3.6.1. How did you **decide** how many samples of student work to review?

All students in two selected courses took the test.

Q3.6.2. How many students were in the class or program?

Geology 100 (juniors): 25
Geology 102 (seniors): 41

Q3.6.3. How many samples of student work did you evaluate?

Geology 100 (juniors): 25
Geology 102 (seniors): 41

Q3.6.4. Was the sample size of student work for the direct measure adequate?

- [X] 1. Yes
- [ ] 2. No
- [ ] 3. Don't know

Q3B: Indirect Measures (surveys, focus groups, interviews, etc.)

Q3.7. Were indirect measures used to assess the PLO?

- [ ] 1. Yes
- [X] 2. No (Skip to **Q3.8**)
- [ ] 3. Don't know

Q3.7.1. Which of the following indirect measures were used? **[Check all that apply]**

- [ ] 1. National student surveys (e.g., NSSE)
- [ ] 2. University conducted student surveys (e.g. OIR)
- [ ] 3. College/Department/program student surveys
- [ ] 4. Alumni surveys, focus groups, or interviews
- [ ] 5. Employer surveys, focus groups, or interviews
- [ ] 6. Advisory board surveys, focus groups, or interviews
- [ ] 7. Other, specify:

Q3.7.2 If surveys were used, how was the sample size decided?

Q3.7.3. If surveys were used, briefly specify how you selected your sample.

Q3.7.4. If surveys were used, what was the response rate?

Q3C: Other Measures (external benchmarking, licensing exams, standardized tests, etc.)

Q3.8. Were external benchmarking data such as licensing exams or standardized tests used to assess the PLO?

- [ ] 1. Yes
- [X] 2. No (Go to **Q3.8.2**)
- [ ] 3. Don't know

Q3.8.1. Which of the following measures were used?

- [ ] 1. National disciplinary exams or state/professional licensure exams
- [ ] 2. General knowledge and skills measures (e.g., CLA, CAAP, ETS PP, etc.)
- [ ] 3. Other standardized knowledge and skill exams (e.g., ETS, GRE, etc.)
- [ ] 4. Other, specify:

Q3.8.2. Were other measures used to assess the PLO?	**Q3.8.3.** If other measures were used, please specify:
[ ] 1. Yes [X] 2. No (Go to **Q3.9**) [ ] 3. Don't know (Go to **Q3.9**)	

Q3D: Alignment and Quality

Q3.9. Did the data, including the direct measures, from all the different assessment tools/measures/methods directly align with the PLO?	**Q3.9.1.** Were **ALL** the assessment tools/measures/methods that were used good measures for the PLO?
[X] 1. Yes [ ] 2. No [ ] 3. Don't know	[X] 1. Yes [ ] 2. No [ ] 3. Don't know

Question 4: Data, Findings and Conclusions

Q4.1. Please provide simple tables and/or graphs to summarize the assessment data, findings, and conclusions: (see Attachment III) **[Word limit: 600 for selected PLO]**

A detailed chart of results is included in Appendix II. A simplified chart is presented here. **Bold** scores show where students exceeded expectations; ***bold italics*** show where students almost met expectations. Many questions were **multiple choice**. For those questions the **percentage** of students answering correctly is shown. The questions on igneous rocks, metamorphic rocks and minerals, elements and rocks required multiple answers (completing a chart, matching, etc.). For these questions both **the average score and the percentage** of students who answered all parts correctly is reported. The anticline problem had **three** parts; the **percentage** of students who answered correctly for each part is reported.

Domain/Item	**Juniors**	**Seniors**
Geologic time: Time scale	20%	37%
Chemistry: Ions v isotopes	**84%**	**95%**
Chemistry: Minerals, elements, rocks (multiple answers required)	63% average correct 0% got all correct	**78%** average correct 0% got all correct
Chemistry: bonding	***68%***	**85%**
Rocks: Sedimentary	***68%***	**78%**
Rocks: Igneous chart (multiple answers required)	14% average correct 0% got all correct	45% average correct 12% got all correct
Rocks: Metamorphic matching (multiple answers required)	54% average correct 0% got all correct	***68%*** average correct 10% got all correct
Plate tectonics: Age of ocean	**72%**	**90%**

floor		
Anticline: correctly identified	20%	**88%**
Anticline: correctly labeled	52%	**80%**
Anticline: cross-section correct	12%	**71%**

Q4.2. Are students doing well and meeting program standard? If not, how will the program work to improve student performance of the selected PLO?

The Student Knowledge Inventory measures fairly basic knowledge that is a prerequisite for understanding advanced geologic concepts in upper division courses. Ideally, we would hope that all of our juniors and seniors would have mastered these concepts by the time they take this test. What we found is that our seniors meet or exceed the standards in almost all areas, with three exceptions: the geologic time scale, igneous rock classification and metamorphic rock interpretation, though the standard was almost met for metamorphic rocks..

Our juniors meet or exceed the standards in these areas: basic chemistry, plate tectonics. They nearly met the standard in chemical bonding and sedimentary rocks. They performed below the standard in all other areas, and far below the standard on the geologic time scale and igneous rocks.

What we learned from this assessment is that even though the juniors are shaky on their prerequisite knowledge when they enter their junior level courses, those concepts seem to be getting reinforced in those junior level courses. We have a large number of transfer students, so we don't have total control over how these concepts are taught in introductory courses. This information is largely useful for the instructors of upper division courses to understand where the students are as they enter these courses. By the time students start their senior year the basics seem to be pretty solid with a few notable exceptions. We continue to struggle with the geologic time scale. Various faculty members are including geologic time scale quizzes in their upper division electives. In the years in which those electives are taught, the students score better. We will discuss including the time scale in all courses.

We also see that students continue to not know their igneous rocks heading into their senior year. The course in which this test is given to seniors is Igneous and

Metamorphic Petrology, in which students delve much more deeply into igneous rocks. We have discussed using a different tool to measure the students' mastery of igneous rocks at the end of that course.

Q4.3. For **selected** PLO, the student performance:

- [ ] 1. **Exceeded** expectation/standard
- [ ] 2. **Met** expectation/standard
- [X] 3. **Partially** met expectation/standard
- [ ] 4. **Partially** met expectation/standard
- [ ] 5. No expectation or standard has been specified
- [ ] 6. Don't know

Question 5: Use of Assessment Data (Closing the Loop)

Q5.1. As a result of the **assessment effort in 2014-2015** and based on the prior feedback from OAPA, do you anticipate making any changes for your program (e.g., course structure, course content, or modification of PLOs)?

- [x] 1. Yes
- [ ] 2. No (Go to **Q6**)
- [ ] 3. Don't know (Go to **Q6**)

Q5.1.2. Do you have a plan to assess the impact of the changes that you anticipate making?

- [x] 1. Yes
- [ ] 2. No
- [ ] 3. Don't know

Q5.1.1. Please describe what changes you plan to make in your program as a result of your assessment of this PLO. Include a description of how you plan to assess the impact of these changes. **[Word limit: 300 words]**

Incorporating geologic time scale quizzes into upper division courses; including more opportunities for juniors to interact with rocks.

Q5.2. How have the assessment data from last year (**2013 - 2014**) been used so far? **[Check all that apply]**

	(1) Very Much	**(2)** Quite a Bit	**(3)** Some	**(4)** Not at all	**(8)** N/A
1. Improving specific courses	**X**				
2. Modifying curriculum			**X**		
3. Improving advising and mentoring					**X**
4. Revising learning outcomes/goals				**X**	
5. Revising rubrics and/or expectations			**X**		
6. Developing/updating assessment plan			**X**		
7. Annual assessment reports	**X**				
8. Program review					**X**
9. Prospective student and family information				**X**	
10. Alumni communication				**X**	
11. WASC accreditation (regional accreditation)					**X**
12. Program accreditation					**X**
13. External accountability reporting requirement					**X**
14. Trustee/Governing Board deliberations					**X**
15. Strategic planning			**X**		
16. Institutional benchmarking					**X**
17. Academic policy development or modification				**X**	
18. Institutional Improvement					**X**
19. Resource allocation and budgeting				**X**	
20. New faculty hiring			**X**		
21. Professional development for faculty and staff				**X**	
22. Recruitment of new students				**X**	
23. Other Specify:					

Q5.2.1. Please provide a detailed example of how you used the assessment data above.
We administered the SKI instrument last year and analyzed the results. We discussed integrating activities into more courses to help improve student scores. For example, we included more ways for students to engage the geologic time scale, and applied these methods in more courses.

Additional Assessment Activities

Q6. Many academic units have collected assessment data on aspects of a program that are not related to PLOs (i.e., impacts of an advising center, etc.). **If** your program/academic unit has collected data on the program elements, please briefly report your results here. **[Word limit: 300]**

N/A

Q7. What PLO(s) do you plan to assess next year?

	1. Critical thinking
	2. Information literacy
	3. Written communication
	4. Oral communication
	5. Quantitative literacy
	6. Inquiry and analysis
	7. Creative thinking
	8. Reading
	9. Team work
X	10. Problem solving
	11. Civic knowledge and engagement
	12. Intercultural knowledge and competency
	13. Ethical reasoning
	14. Foundations and skills for lifelong learning
	15. Global learning
	16. Integrative and applied learning
	17. Overall competencies for GE Knowledge
	18. Overall competencies in the major/discipline
	19. Other, specify any PLOs that were assessed in 2014-2015 but not included above: a. b. c.

Q8. Have you attached any appendices? If yes, please list them all here:

Appendix I: Student Knowledge Inventory
Appendix II: Detailed results from SKI

Program Information

P1. Program/Concentration Name(s): Geology BA/Earth Science BA **P1.1.** Report Authors: Judi Kusnick & Tim Horner	**P2.** Program Director: **P2.1.** Department Chair: Tim Horner
P3. Academic unit: Department, Program, or College: Geology	**P4.** College: NSM
P5. Fall 2014 enrollment for Academic unit *(See Department Fact Book 2014 by the Office of Institutional Research for fall 2014 enrollment:* 105	**P6.** Program Type: **[Select only one]** X 1. Undergraduate baccalaureate major 2. Credential 3. Master's degree

	☐ 4. Doctorate (Ph.D./Ed.d) ☐ 5. Other. Please specify:
Undergraduate Degree Program(s): **P7.** Number of undergraduate degree programs the academic unit has: 3 **P7.1.** List all the name(s): Geology BS, Geology BA, Earth Science BA **P7.2.** How many concentrations appear on the diploma for this undergraduate program? 1	***Master Degree Program(s):*** **P8.** Number of Master's degree programs the academic unit has: 1 **P8.1.** List all the name(s): Geology MS **P8.2.** How many concentrations appear on the diploma for this master program? 1
Credential Program(s): **P9.** Number of credential programs the academic unit has: 0 **P9.1.** List all the names:	***Doctorate Program(s)*** **P10.** Number of doctorate degree programs the academic unit has: 0 **P10.1.** List all the name(s):

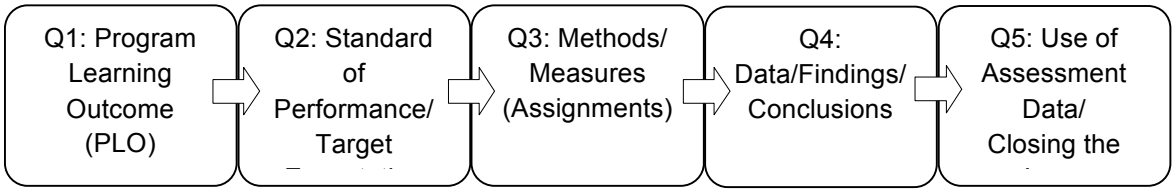
When was your assessment plan?	1. Before 2007-08	2. 2007-08	3. 2008-09	4. 2009-10	5. 2010-11	6. 2011-12	7. 2012-13	8. 2013-14	9. 2014-15	10. No formal plan
P11. Developed		X								
P12. Last updated								X		

	1. Yes	2. No	3. Don't Know
P13. Have you developed a curriculum map for this program?	X		
P14. Has the program indicated explicitly where the assessment **of student learning** occurs in the curriculum?	X		
P15. Does the program have any capstone class?	X		
P16. Does the program have **ANY** capstone project?	X		

Assessing Other Program Learning Outcomes (Optional)

If your program assessed PLOs not reported above, please summarize your assessment activities in the table below. If you completed part of the assessment process, but not the full process (for example, you revised a PLO and developed a new rubric for measuring it), then put N/A in any boxes that do not apply.

Report Assessment Activities on Additional PLOs Here



APPENDIX I

Student Knowledge Inventory Name _____

Fall 2014

1. The periods of the Paleozoic include (mark all that apply)

   A. Triassic D. Paleogene

   B. Permian E. Oligocene

   C. Silurian

2. Different _____ of an element are atoms containing the **same number** of protons but **different** numbers of neutrons.

   A. ions D. isotopes

   B. classes E. varieties

   C. particles

3. Normal faults occur where

   A. there is horizontal shortening

   B. there is horizontal tension

   C. the hanging wall moves down

   D. the footwall moves up

   E. the hanging wall moves sideways

4. Which of the following statements about the age of rocks is most likely true?

   A. Rocks found in the ocean are about the same age as rocks found on continents

   B. Rocks found on continents are generally older than rocks found in the ocean

   C. Rocks found in the ocean are generally older than rocks found on continents

   D. None of the above; we cannot figure out the age of rocks precisely enough to figure out which rocks are older

5. The difference between ionic and covalent bonding is

   A. in ionic bonding, atoms can share or lose electrons.

   B. ionic bonds are always stronger

   C. covalent bonding only occurs in salts

   D. in covalent bonding, atoms share electrons

   E. covalent bonds can only occur when metals bond.

6. What is the most likely environment where limestone forms?

   A. Fast moving stream

   B. Deep ocean

   C. Flood plain

   D. Shallow ocean or sea

   E. Alluvial fan

7. The ocean floor

   A. is oldest at the edges

   B. is generally older than continental rocks

   C. is generally deepest in the middle

   D. is similar in composition to the continents

   E. is created at subduction zones

8. Match each metamorphic rock with at least one parent rock that it might have been before metamorphism (there might be more than one possibility for each parent rock or metamorphic rock). Put the letter or letters of the appropriate parent rock(s) in the blank after the name of the metamorphic rock.

Gneiss _____	a. Sandstone
Slate _____	b. Limestone
Quartzite _____	c. Shale
Greenstone _____	d. Granite
Marble _____	e. Basalt
Schist _____	f. Chert

9. Fill in the chart below with the appropriate igneous rock names. NOTE: you may have used a chart to identify igneous rocks that looked different from this chart. Please think carefully about what rock name goes in which block.

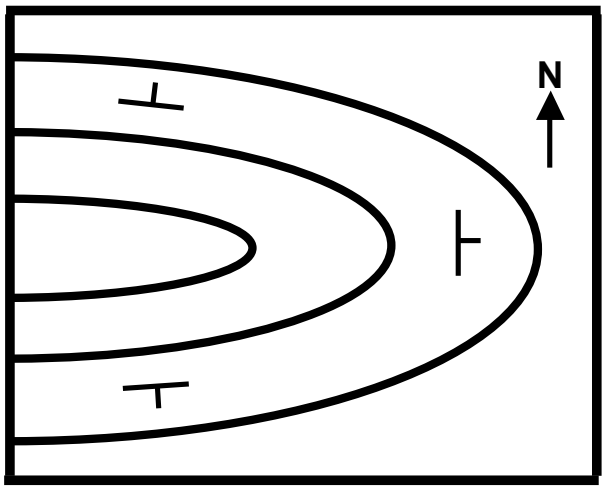
Texture → Composition ↓	Fine-grained	Coarse-grained
Mafic		
Intermediate		
Felsic		

10. Identify each of the following materials as either an element (E), a mineral (M) or a rock (R)

arkose_____	phyllite_____	iron_____	peridotite_____
augite_____	calcium_____	mica_____	amphibolite_____

11. Look at the map below.

A



a. What geologic structure is shown on the map (be as specific as possible)?

b. Put an **O** where you would expect to see the oldest rock in this area.

B

c. In the box below, draw a cross-section of this structure along the eastern edge of the map from **A** to **B**. (a sketch will do).

A **B**

APPENDIX II: Detailed results of SKI 2014

Topic	G100 25	G102 41	Topic	G100 25	G102 41
Time scale:	20%	37%	**Igneous rocks** People who got all right	0	5
Ion v isotope:	**84%**	**95%**	Basalt	28%	**71%**
Normal faults:	XX	XX	Andesite	8%	51%
Age of rocks:	**72%**	**90%**	Rhyolite	16%	37%
Bonding:	68%	**85%**	Gabbro	8%	32%
Limestone:	68%	**78%**	Diorite	8%	37%
Ocean floor:	**76%**	**90%**	Granite	16%	44%
Metamorphic rocks:	54%	68%	**Elements, Minerals, Rocks**		
Igneous rocks:	14%	45%	Arkose	**76%**	**78%**
Minerals, elements, rocks:	63%	**78%**	Phyllite:	40%	**73%**
Metamorphic rocks: People who got all right	0	4	Iron	**96%**	**85%**
Gneiss	44%	**73%**	Peridotite	32%	56%
Slate	**84%**	**85%**	Augite	**72%**	**95%**
Quartzite	64%	**88%**	Calcium	**92%**	**85%**
Greenstone	44%	46%	Mica:	52%	**93%**
Marble	64%	63%	Amphibolite	40%	56%
Schist	20%	39%			

Anticline	G100	G110
What is it?	Anticline/dome 20% Syncline 12% Topographic 32% No attempt 36%	Anticline/dome **88%** Syncline 5% Hill 5% No attempt 2% Plunging **29%**
oldest rock labeled	52% (only 24% consistent with other answers)	Innermost **80%** Outermost 12% Middle layer 7%
X-section	Said anticline, drew anticline 12% Said anticline, drew other 8% Said syncline, drew syncline 8% Said syncline, drew anticline 4% Said other, drew other 56% No attempt 12%	Said anticline, drew anticline **71%** Said anticline, drew syncline 17% Said anticline, drew other 2% Said syncline, drew syncline 5% Said nothing, drew syncline 2% No attempt 2%