Grading Checklist
Learning Assessment #3 – Igneous & Sedimentary Rocks
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Learning assessments are graded using a checklist-style rubric. The purpose of the checklist is to clearly and concisely show students where they lost marks on the assignment and why. When students are reviewing their work they initially focus on the areas they got incorrect as identified on the checklist.

The checklists also help to ensure that grading is transparent to the students. They help maintain consistency amongst graders, which may be a challenge in large courses with multiple instructors/teaching assistants marking the same assignment.

Note: Because this learning assessment was completed in two class periods, there are two separate grading checklists. The first is for Parts I & II and the second is for Part III.

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LEARNING ASSESSMENT #3 (IGNEOUS AND SEDIMENTARY ROCKS) GRADING CHECKLIST

PART 1: ( /26)

Area 1
**Predominant Rock Type/Name** - 4 pts
___ Rock type – Extrusive
___ Rock name - any one of: dacite, andesite, basalt, or tuff
___ Rock chemistry – must match rock type listed (dacite = silicic, andesite = intermediate, basalt = mafic, tuff = silicic
___ Other rock types - list more rocks that occur in this area (BONUS QUESTION)

**Igneous Processes** – 3 pts
___ Igneous process (volcanic eruptions)
___ Igneous processes (solidification)
___ Description – magma is erupting and solidifying at the Earth’s surface, igneous rocks are forming

Area 2
**Predominant Rock Type/Name** – 4 pts
___ Rock type – Intrusive
___ Rock name – Diorite or Gabbro – MUST match with rock type from Area 1
___ Rock chemistry – intermediate, silicic/felsic or mafic (MUST match rock type given)
___ Other rock types – list more rocks that are found in this area that are consistent with Area 1 rocks (BONUS QUESTION)

**Igneous Processes** (any three of the following, if all 4 listed one bonus point) – 4 pts
___ Igneous process (solidification)
___ Igneous processes (fractional crystallization)
___ Igneous processes (assimilation and/or contamination)
___ Igneous processes (transport)
___ Description: magma chamber - magma is solidifying (and fractionating), assimilating surrounding rock

Area 3
**Predominant Rock Type/Name** – 3 pts
___ Rock type – Intrusive
___ Rock name – Gabbro
___ Rock chemistry - Mafic

**Igneous Processes and Causes** – 4 pts
___ Igneous process (transport)
___ Igneous processes (contamination)
___ Igneous processes (solidification)
___ Buoyant magma rises upward from melting area

Area 4
**Predominant Rock Type/Name** – 3 pts
___ Rock type - Intrusive
___ Rock name - Peridotite
___ Rock chemistry – ultramafic
___ Bonus: Basalt or Gabbro (the subducting oceanic crust)

**Igneous Processes** – 3 pts
___ Melting
___ Partial melting
___ Description - Addition of volatiles causes melting of mantle

PART 2: ( /9)

**Labelled clearly on Cross Section:**

1. **Areas of Weathering and Erosion**
___ Weathering & Erosion – Eurasia
___ Weathering & erosion – Japan

2. **Areas of Transport**
___ Transport – Eurasia
___ Eurasia to depositional basin transport direction (arrow)
___ Transport – Island of Japan
___ Japan transport direction (westward to the Japan Sea)
___ Japan transport direction (eastward to the trench)

3. **Areas of Deposition**
___ Deposition & lithification (Japan Sea)
___ Deposition & lithification (Pacific)

**Sub Total:** /35

Reid et al. (2011)
Bonus: Sedimentary Rock Types (9 points)

___ sandstone (edge of Eurasia)
___ sandstone (west edge of Japan)
___ conglomerate (edge of Eurasia)
___ conglomerate (either edge of Japan or at/near volcano)
___ conglomerate and/or sandstone (in the trench)
___ siltstone and shale (deep basin of Japan sea)
___ siltstone and shale (ocean basin east of trench)
___ limestone (shallow marine in Japan sea)
___ limestone (shallow marine in Japan sea – other side as well)

TOTAL including Bonus:  /35
LEARNING ASSESSMENT #3: IGNEOUS AND SEDIMENTARY ROCKS
GRADING CHECKLIST (Part III)

PART 3: Geologic History of the Daisen Volcano (18 points)

1.3 – 1.2 Ma
___ eruption of mafic or basaltic magma / lava flows
___ formation of basalt or forming volcano
___ diagram showing shield-like volcano structure
___ diagram indicates / labels basalt

1.0 – 0.02 Ma
___ andesite lava flow eruption at 1 Ma (first activity during this period)
___ early dacite eruptions and rock formation (lava flows)
___ explosive eruption forming tuff at 0.6 Ma
___ post 0.6 Ma eruptions of dacite
___ 0.5 Ma eruption of more andesite
___ last to happen: pyroclastic eruptions / flows and mudflows
___ diagram showing composite volcano shape
___ diagram shows correct order of rock types

0.02 – 0 Ma
___ weathering and erosion of volcanic rocks / NO volcanic eruptions through this time
___ formation of sedimentary gravel / talus deposits
___ diagram showing composite volcano shape
___ diagram shows correct order of rock types and more dacite over tuff (indicating activity between 0.6 and 0.02 Ma)
___ diagram indicates weathering / erosion / transport processes or gravel / talus deposits
___ transport of sediment eroded from volcanic rocks into Japan Sea

Total:  /18