Physical Geography of Southeast Asia: Module Materials

**TEKS Alignment**

(3) *Geography*. The student understands how physical processes shape patterns in the physical environment. The student is expected to:

- **(B)** describe the physical processes that affect the environments of regions, including weather, tectonic forces, erosion, and soil-building processes;

(4) *Geography*. The student understands the patterns and characteristics of major landforms, climates, and ecosystems of Earth and the interrelated processes that produce them. The student is expected to:

- **(A)** explain how elevation, latitude, wind systems, ocean currents, position on a continent, and mountain barriers influence temperature, precipitation, and distribution of climate regions;
- **(B)** describe different landforms and the physical processes that cause their development;

**Key Vocabulary**

- alluvial
- archipelago
- cordillera
- insular
- peninsula
- monsoon
- folded mountain
- ITCZ
- Subsidence
- Plantation crops
- Terraced farming
- Oceanic plate
- Subduction
- Tropical Monsoon Climate
- Tropical Wet Climate
- Tropical Savanna Climate
- Maritime
- Ravenne/Riverine

*This project is funded in part by a grant from the National Geographic Society Education Foundation.*
**Key Places**

- Mount Merapi
- Mount Pinatubo
- Krakatoa
- Mekong River
- Chao Phraya
- Irrawaddy River
- Salween River
- Borneo/Kalimantan
- Java
- Sumatra
- Luzon
- Sulawesi/Celebes
- Singapore
- Annam Cordillera
- Arakan Yoma
- Gulf of Thailand
- Strait of Malacca
- Malay Peninsula
- Indochina Peninsula

**Module Introduction**

Southeast Asia is a land of collisions – both cultural and physical. Straddling the boundaries of four separate tectonic plates, this region is constantly reshaping itself – shifting, colliding, and often erupting. From the deepest spot on the ocean floor to some of the most active volcanoes in the world, this is a region of extremes. The region has more volcanoes than any world region except East Asia. In fact, East and Southeast Asia together contain around 1/3 of all of the world’s volcanoes.

It is also a region of divisions – both cultural and physical, as well. Part of the region lies on a series of peninsulas jutting out from the Asian continent. The remaining part of the region is spread out across a vast expanse of islands. Thousands upon thousands of islands spread out across an area larger than the contiguous United States.

The resources in this module will assist you in helping your students understand the vast complexity of this region’s physical geography. The video presentations discuss various features and phenomena that impact the physical geography. These videos can be used when preparing a unit on Southeast Asia, as well as in the classroom with students. The case study focuses upon the recent (2010) eruption of Mount Merapi in Indonesia. It includes a power point with information on the cause and effects of this eruption and includes a
link to an online photo essay of the eruption provided by The Boston Globe. The case study also includes a
Google Earth kml file with thermal and sulfur dioxide emission images and satellite images of the eruption.
The lesson plan is a brief introduction to the major physical features of this region where students create
annotated sketch maps.

**Video Presentations**

- **Physical Geography of Southeast Asia Full Length Movie**
  - http://stream.its.txstate.edu/users/tage/Physical%20Geography%20of%20Southeast%20Asia%20Full%20Length.mov

- **Natural Hazards in Southeast Asia Slides**
  - http://stream.its.txstate.edu/users/tage/GeoP_Natural_Hazards.mov

- **Monsoons in Southeast Asia Slides**
  - http://stream.its.txstate.edu/users/tage/GeoP_Monsoons.mov

- **Climate Patterns in Southeast Asia Slides**
  - http://stream.its.txstate.edu/users/tage/GeoP_Climatic_Patterns.mov

- **Volcanoes in Southeast Asia Slides**
  - http://stream.its.txstate.edu/users/tage/GeoP_Volcanoes.mov

- **Topography of Southeast Asia Slides**
  - http://stream.its.txstate.edu/users/tage/GeoP_Topography.mov

- **Rivers of Southeast Asia Slides**
  - http://stream.its.txstate.edu/users/tage/GeoP_Rivers.mov

- **Life on the Rivers in Southeast Asia Slides**
  - http://stream.its.txstate.edu/users/tage/GeoP_Ravenne_Life.mov

- **Resources of Southeast Asia Slides**
  - http://stream.its.txstate.edu/users/tage/GeoP_Resources.mov

- **Agriculture in Southeast Asia Slides**
  - http://stream.its.txstate.edu/users/tage/GeoP_Agriculture.mov

**Case Study**

Mount Merapi Eruption Power Point
Mount Merapi Eruption Google Earth File
Readings and Visual Resources

Physical Geography of Southeast Asia – map by Michelle Crane
Exploiting a Land of Plenty – National Geographic
(http://ngm.nationalgeographic.com/2011/08/burma/burma-map)

This map of Burma features the location of important resources which are sold to foreign countries to generate income, as well as areas where the population has been displaced to make room for these projects – and reduce resistance to them, as well.

Satellite Image of Mainland Southeast Asia – NASA
Image of Southeast Asia taken in 2001 by NASA’s Terra spacecraft shows the jungles of Vietnam, Laos, and Cambodia and the Mekong River.

Ring of Fire – courtesy of the U.S. Geological Survey.

(http://pubs.usgs.gov/gip/dynamic/fire.html)

Seismicity of the Earth 1900 – 2010 Australia Plate and Vicinity – USGS

(http://pubs.usgs.gov/of/2010/1083/g/)

This USGS publication focuses upon the Australia plate and so includes a large portion of Indonesia. The map shows great detail of the different types of plate boundaries found in this region, as well as seismic events for a 110 year time period. A PDF of the map can be downloaded from the site.
Plate Boundaries – courtesy of the U.S. Geological Survey

(https://pubs.usgs.gov/gip/dynamic/Vigil.html)

Dynamic Earth Interactive: Plates and Boundaries – Annenberg Learner Website

(https://www.learner.org/interactives/dynamicearth/plate.html)

Interactive has annotated plate boundary map, including one which highlights what type of boundary can be found along each plate, as well as a simplistic representation of plate movements.
Dynamic Earth Interactive: Slip, Slide & Collide – Annenberg Learner Website

(http://www.learner.org/interactives/dynamicearth/slip2.html)

An animated illustration of plate boundaries.

Perry-Castaneda Library Map Collection: Asia Maps – University of Texas at Austin

(http://www.lib.utexas.edu/maps/asia.html)

An extensive collection of maps including historical, thematic, topographic, and general reference maps from all over Asia.

Myanmar’s River of Spirits – National Geographic

(http://ngm.nationalgeographic.com/2006/05/irrawaddy-river/salak-text)

This collection of materials focuses upon the Irrawaddy River in Burma/Myanmar. It contains an article printed in the magazine in May 2006, a photo gallery of images from the article, a short video of a spirit festival and a list of resources for more information on the river and Burma.
**Additional Video Resources**

Stat for Global Intelligence – A geopolitical analysis firm has posted dozens of short videos (most around 3 minutes long) on a variety of topics from around the world. While some of the current event videos are up to 2 years old, the topics they address are still relevant. The videos are free to watch online.

- **Thailand’s Geographic Challenge**

- **Indonesia’s Geographic Challenge**

- **The Philippine’s Geographic Challenge**

- **Myanmar’s Geographic Challenge**

- **Thailand’s Floods Highlight Historical Tensions**

**Lesson Plan**

Creating an Annotated Sketch Map of Southeast Asia Lesson Plan
Physical Geography of Southeast Asia Power Point
Climate and Weather of Southeast Asia Power Point
Physical Geography of Southeast Asia
Creating an Annotated Sketch Map of Southeast Asia
By Michelle Crane
Teacher Consultant for the Texas Alliance for Geographic Education
Guiding Question (5 min.)

- What processes are responsible for the creation and distribution of the landforms and climates found in Southeast Asia?
Draw a sketch map (10 min.)

- This should be a general sketch
  - do not try to make your map exactly match the book.
- Just draw the outline of the region
  - do not add any features at this time.
- Use a regular pencil first, so you can erase.
- Once you are done, trace over it with a black colored pencil.
- Leave a 1” border around your page.
Looking at your outline map, what two landforms do you see that seem to dominate this region?

Predict how these two landforms would affect the people who live in this region?
Peninsulas & Islands

- **Mainland** SE Asia consists of two large **peninsulas**
  - Malay Peninsula
  - Indochina Peninsula
- **Insular** SE Asia consists of thousands of islands
- **Label these islands in black:**
  - Sumatra
  - Java
  - Sulawesi (Celebes)
  - Borneo (Kalimantan)
  - Luzon
- **Label these peninsulas in brown**
Draw a line on your map to indicate the division between insular and mainland SE Asia.
Mountains & Plateaus

- **Mainland** ranges and those found on Borneo are **folded mountains** formed by the collision between the Indian subcontinent and Eurasia.
- These mountains tend to run in parallel chains.
- **Insular** mountains (except for Borneo) are formed by volcanic activity.
Label the mountains and the plateau

- Draw a series of ^^^^^^ in **brown** to indicate a mountain chain.
- Label these mountain chains in **brown**:
  - Arakan Yoma
  - Annam Cordillera
  - Khorat Plateau – you do not need a symbol
Explain how the presence of so many mountains in this region might affect the people who live here.

- Be sure to include how the volcanic mountains would affect people.
Bodies of Water

- SE Asia is surrounded by water – the islands & peninsulas divide the water into bays, gulfs and seas.
- The rivers provide fertile soil for farming, transportation for inland trade, fresh water, and fish for food.
Draw and label the waterways in blue:

- Andaman Sea
- Gulf of Thailand
- Strait of Malacca
- South China Sea
- Sulu Sea
- Celebes Sea
- Java Sea
- Philippine Sea
- Irrawaddy River
- Salween River
- Chao Phraya
- Mekong River
- Tonle Sap – draw lake and fill in
Physical Geography of Southeast Asia

- EURASIAN PLATE
- PACIFIC PLATE
- PHILIPPINE PLATE
- AUSTRALIAN PLATE

- Andaman Sea
- Gulf of Thailand
- Java Sea
- Sulu Sea
- South China Sea
- Philippine Sea

- Borneo (Kalimantan)
- Java (Java) Trench

- Challenger Deep

Scale: 0, 175, 350, 700, 1050, 1400 Miles

Source: Texas Alliance for Geographic Education; http://www.geo.txstate.edu/tage/
Looking at your map, predict which waterway you think would be the most valuable to control in order to control shipping in the region.

Explain your answer.
Strait of Malacca

- The Strait of Malacca is one of the world’s most important shipping lanes.
- The strait provides the quickest route between the countries which border the Indian Ocean and those on the Pacific.
- It is also an excellent example of a **choke point**
  - the states which control this strait control all shipping in the region.
Plate Boundaries

- One of the most important factors which affects the physical geography of Southeast Asia is that four different plates come together within this region.

- Using the map on the next slide – or one in your reference text,
  - lightly draw in the plate boundaries
  - You can use your regular pencil or a gray colored pencil for this.

- Label each plate in black, using all capital letters.
List the three types of plate boundaries and the features which are found along them.

Based upon what you already know about the geology of Southeast Asia, which type of boundary would you most expect to find here?

Explain why.
Using the previous map as a guide, illustrate the type of plate boundaries on your map.
Trenches

- Submarine **trenches** are formed along **subduction zones** - the area where one plate subducts under another along a **convergent plate boundary**.

- These trenches are among the deepest places on earth – in fact, the very deepest place on earth is located in this region.

- **Label the trenches blue:**
  - Java Trench
  - Philippine Trench
  - Marianas Trench
Challenger Deep

- Deepest place on earth
- It is 35,755 feet below sea level
- Label Challenger Deep in red.

http://channel.nationalgeographic.com/videos/the-challenger-deep/
Closing Question

Based upon your map, name the two landform features which dominate Southeast Asia.
Summary

- Write a short (2 to 3 paragraphs) answer to the guiding question.
- Your answer should include the following:
  - List and describe the major features of the region.
  - Explain the factors which created these features.
  - Explain how these features interact with each other in this region.
  - Explain how these features may affect people in this region.
Notes & Credits

- **Slide 4**
  - Display this map for students to use as a reference while drawing their sketch. Remind them not to add features in at this time.

- **Slide 5**
  - Southeast Asia is a region dominated by peninsulas and islands. These landforms tend to isolate groups of people, creating a wide variety of different culture groups in the region.

- **Slide 6**
  - Indicate to students that red, underlined words are vocabulary words, which should be included in their annotations.

- **Slide 7**
  - You may inform the students that since Malaysia straddles both the peninsula and islands, it could be considered both, or divided in two between mainland Southeast Asia and insular Southeast Asia. By convention, it is typically marked as part of insular Southeast Asia.

- **Slide 10**
  - Display this map for students to use as a reference while drawing their sketch. Remind them not to add features in at this time.

- **Slide 11**
  - Mountains would further isolate culture groups. While they may provide important mineral resources, they are difficult to farm. Volcanic mountains would provide fertile soil for growing food, but volcanic activity would threaten the lives of the people.

- **Slide 14**
  - Display this map for students to use as a reference while drawing their sketch. Remind them not to add features in at this time.
The Strait of Malacca is one of the world’s most important shipping lanes. The strait provides the quickest route between the countries which border the Indian Ocean and those on the Pacific.

Plate Tectonic Map used courtesy of the U.S. Geological Survey. You might note to the students that while the region is almost entirely located on the Eurasian plate, the presence of the Australian, the Philippine and the Pacific plates significantly impact the people in Southeast Asia. You might also note that a fifth plate – the North American plate, also borders the Philippine plate.

Convergent, Divergent, and Transform. The folded and volcanic mountains are both evidence of convergent boundaries.

Since this is a world map, Southeast Asia might be hard to see. Hold a large sheet of paper or poster board about a foot away from the screen in front of the region. This will cause the region to “pop-out” and can make it easier for students to see. Illustration used courtesy of the U.S. Geological Survey

Note: The video is NOT imbedded. You will need to be connected to the internet to view the video. Click on the picture to connect to the video. Screenshot taken from http://channel.nationalgeographic.com/videos/the-challenger-deep/

Display this map for students to use as a reference while drawing their sketch. Remind them not to add features in at this time.

From the notes, the students may recall that the answer is peninsulas and islands.
Climate and Weather of Southeast Asia
by Michelle Crane
Teacher Consultant for the Texas Alliance for Geographic Education
Opening Question

- Take a few minutes to evaluate your map from yesterday.
  - What aspects of your map do you find helpful?
  - What aspects of your map do you think might need to be improved?
  - Explain how you think this map might help you understand the physical geography of this region better than traditional notes.

- Write your answers on the back of your map.
# Factors Affecting Climate

<table>
<thead>
<tr>
<th>Factor</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Latitude</td>
<td>distance from equator</td>
</tr>
<tr>
<td>Air masses</td>
<td>polar air is cold, air on the equator is warm</td>
</tr>
<tr>
<td>Continentality</td>
<td>distance from water</td>
</tr>
<tr>
<td>Elevation</td>
<td>distance above sea level; temperature drops as you climb</td>
</tr>
<tr>
<td>Mountain barriers</td>
<td>mountains block precipitation</td>
</tr>
<tr>
<td>Ocean currents</td>
<td>warm currents warm the air above them and provide moisture; cool currents have dry, cooler air above them</td>
</tr>
<tr>
<td>Pressure and Prevailing Winds</td>
<td>high pressure is heavy, sinking air; low pressure is light, rising air</td>
</tr>
<tr>
<td>Storms</td>
<td></td>
</tr>
</tbody>
</table>
On the back of your map, list each of the factors and explain how each one affects this region.
Climate Zones - Tropical

- Most of this region lies within the tropics, so warm, moist conditions dominate all year.
- Seasonal variations are mostly due to wind patterns called monsoons.
- Monsoons are not storms like hurricanes. They are wind patterns which shift with the seasons.
Wind Patterns

- Warm air at the equator rises and begins to flow away from the equator—creating a **low pressure** band around the equator.
Wind Patterns

- This low pressure band is called the **Intertropical Convergence Zone**.
- Its location varies during the year as the sun’s direct rays move north or south of the equator.
ITCZ
Summary

- Write a short (2 to 3 paragraphs) answer to the guiding question.
- Your answer should include the following:
  - List and describe the major features of the region.
  - Explain the factors which created these features.
  - Explain how these features interact with each other in this region.
  - Explain how these features may affect people in this region.
Monsoons

- Winds blow towards low pressure band at ITCZ
  - In January,
    - the band is further south over Indonesia.
    - This pulls cool, dry air across the region, creating a dry season.
  - In July,
    - the band moves north of the region.
    - This pulls warm, moist air from the warm bodies of water south of the region and creates a wet season.
On your map, draw the ITCZ bands and shade them in lightly

- Draw January’s band in **blue**.
  - Draw **blue** arrows blowing towards the ITCZ to indicate the wind patterns in January

- Draw July’s band in **red**.
  - Draw **red** arrows blowing towards the ITCZ to indicate the wind patterns in July.
ITCZ

July

January
Guiding Question

What processes are responsible for the creation and distribution of the landforms and climates found in Southeast Asia?
Notes & Credits

- Slide 4
  - Latitude – this region lies almost completely within the tropics so temperatures will be higher. Air masses – most of the air masses moving into this region will be warm, equatorial air due to its latitude. Continentality – as a system of peninsulas and islands – most of this region is very close to water – temperatures will change slowly and will not vary as much between the seasons. Elevation – the mountainous regions will have much cooler climates. Mountain barriers – some of the mountains may block precipitation bearing systems, creating rain shadows in some areas. Ocean currents – this region lies near warm ocean currents, which will heat the air above them and provide moisture for rain. Prevailing winds – these have perhaps the greatest affect in the varying of the weather and climate during the year – the monsoon winds bring warm, moist air and lots of rain during the wet season, drier air during the dry season. Storms – this area is at risk for cyclones which would bring large amounts of rain.

- Slide 6 & 7
  - Graphic courtesy of NOAA

- Slide 8
  - This graphic is in the public domain – provided by Wikicommons.

- Slide 12
  - This graphic is in the public domain – provided by Wikicommons.
Physical Geography of SE Asia:
Creating an Annotated Sketch Map of Southeast Asia

Grade Level: 9-12

Created By TAGE Teacher Consultant: Michelle Crane

Time Frame: Two 55 minute class periods

Curriculum Connection: This lesson is intended to be used in a high school World Regional Geography course in a unit on Southeast Asia. Since Southeast Asia is typically taught towards the end of the school year, it is assumed that the concepts of plate tectonics and factors affecting climate have been previously covered. If not, a brief introduction before beginning this activity may be necessary. This activity provides students with an opportunity to apply those concepts to a specific world region and would be a good way to review these concepts before a major assessment.

Learning Outcomes:
Upon completion of this lesson, students will be able to:
1. identify important landforms in Southeast Asia,
2. explain the physical processes which formed those landforms,
3. describe the tectonic and atmospheric forces which affect this region,
4. explain how landforms and weather systems create the unique climate features of this region,
5. draw a sketch map illustrating the major physical features of Southeast Asia.

TEKS Strand(s) Objective(s):
(3) Geography. The student understands how physical processes shape patterns in the physical environment. The student is expected to:
   (B) describe the physical processes that affect the environments of regions, including weather, tectonic forces, erosion, and soil-building processes;

(4) Geography. The student understands the patterns and characteristics of major landforms, climates, and ecosystems of Earth and the interrelated processes that produce them. The student is expected to:
   (A) explain how elevation, latitude, wind systems, ocean currents, position on a continent, and mountain barriers influence temperature, precipitation, and distribution of climate regions;
   (B) describe different landforms and the physical processes that cause their development;
(22) **Social studies skills.** The student communicates in written, oral, and visual forms. The student is expected to:

(A) design and draw appropriate graphics such as maps, diagrams, tables, and graphs to communicate geographic features, distributions, and relationships;
(B) generate summaries, generalizations, and thesis statements supported by evidence;
(C) use geographic terminology correctly;
(D) use standard grammar, spelling, sentence structure, and punctuation;

**Materials**

<table>
<thead>
<tr>
<th>For Student Use:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>11” x 17” blank paper</td>
<td>one per student</td>
</tr>
<tr>
<td>Note: 11” x 17” paper provides more room to help ensure that students’ maps are legible. When folded in half, they are the same size, so are easy to store. If this size cannot be obtained, regular sized paper may be used.</td>
<td></td>
</tr>
<tr>
<td>Colored pencils</td>
<td></td>
</tr>
<tr>
<td>Atlas or textbook with map of southeast Asia</td>
<td>See Reference section for the atlas used in creating this lesson, but feel free to substitute the books you have available in your classroom.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>For Teacher Use:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Geography of Southeast Asia Power Point</td>
<td></td>
</tr>
<tr>
<td>Climates of Southeast Asia Power Point</td>
<td></td>
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<tr>
<td>Computer with projection device and internet connection</td>
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</tbody>
</table>

**References:**


**Strategies:**
During this lesson, students will be creating a series of annotated sketch maps to illustrate and explain the creation and distribution of Southeast Asia’s landforms and climate regions. A typical sketch map is quickly drawn and contains only essential information. They are an excellent way to get rid of an overabundance of detail while focusing on a specific geographic concept. (McNee, 1955) An annotated sketch map is a bit more formal and contains more information. Students will use the annotated sketch maps as a type of graphic organizer for their class notes. Information presented in the power point will be transferred to the students’ sketch maps, which will then be used for analysis. As a final assessment activity, students will create a final sketch map combining information from both previous maps.
Creating an Annotated Sketch Map of Southeast Asia

Procedures to conduct the lesson:
Starting the Lesson: Day One – 5 minutes

**Asking Geographic Questions:** Introduce the students to the lesson topic by displaying the Guiding Question, which is on the second slide of the “Physical Geography of Southeast Asia” Power Point. Explain to the students that the Guiding Question is the question which the entire lesson seeks to answer. Ask the students to copy down the question, then show the next slide, which depicts the major landforms of Southeast Asia. Have the students use their textbook or atlas to find a climate map of Southeast Asia, as well. Ask them to recall the processes you have previously studied which affect the creation and distribution of landforms and climates. Make sure to remind them to try and recall how landforms and climates interact (ex. Orographic precipitation). Give the students a few minutes to write a brief (2 to 3 sentence) answer to the guiding question.

Guiding Question: *What processes are responsible for the creation and distribution of the landforms and climates found in Southeast Asia?*

After students have completed their answers, ask a few to share their answers with the class. Hopefully, some students will remember information regarding plate tectonics and will mention the role plates play in creating landforms such as mountains and volcanoes. In addition, some students might mention climate factors such as proximity to water, latitude, and altitude. At this stage, you are just checking for recall. It is not necessary to correct them or add information at this time – tell them that they will learn the important process through completing this activity.

The Lesson:

**Acquiring Geographic Information & Organizing Geographic Information:**

Explain to the students that they are going to be completing an annotated sketch map as a method of organizing the information they need to answer the guiding question.

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**Note to Instructor:** Many students are apprehensive about drawing sketch maps because they feel they do not have the artistic skill necessary to draw a “good” map. Emphasize that all maps are imperfect representations of the earth’s surface – they all contain distortions and errors. In addition, sketch maps are an important way for students to develop their mental maps and build understanding about geographic relationships. Assure the students they will not be assessed based upon the artistic merits of their maps and that accuracy will be assessed based upon relative and not absolute location. Finally, the best way to assist students with their anxiety is to model the practice for them as often as possible. (Hayes, 1993)
Step One: (10 – 15 minutes)

Begin by making sure each student has one sheet of 11” x 17” paper, one set of colored pencils, and a textbook or atlas with a physical map of Southeast Asia. The students should draw an outline of Southeast Asia using a black pencil. (It may be helpful to let them use a regular pencil initially, so they can erase. Once they have an outline they are happy with, they can trace over it with the black colored pencil.) Make sure they fill the paper as much as possible, but leave about a 1” margin around the edges. (This does not have to be exactly 1”.)

**Note regarding time:** If this is the first time students have completed a sketch map, it may take a bit more time. However, try not to give them too much time, or they will try to make their maps too perfect. Set time at 10 minutes to begin with. Check students’ progress and increase by a few minutes at a time to make sure students are consistently working. If students have a great deal of experience making sketch maps, this task may only take 5 to 10 minutes.

Step Two: Day One: 25 – 30 minutes

Once the outlines have been completed, continue with the power point. As each concept is explained, have students draw in the appropriate features and add annotations along the sides and margins of the map indicating how each feature was formed or what effect each feature has on landforms or climate. Examples are shown in the power point slides. Higher order thinking questions are presented throughout the power point in the “Notes” section of each slide. Students may write the answers to these questions on the back of their maps. After they have answered, stop and take a few minutes to discuss their answers – making sure to correct any misconceptions or incorrect answers using the answers provided in the “Notes” section on the slide for reference.

End of Day One: 5 minutes

Closing product: Before collecting the maps, have the students complete the closing question (slide 20) on the back of their map. Collect the maps as the students leave class.

Day Two: 5 – 10 minutes

Depending upon the amount of discussion for each question and the length of time it took to draw the sketch maps, you may need to complete the Physical Geography Power Point today.
Step Three: (10 minutes)

Begin the “Climate & Weather of Southeast Asia” Power Point. Give the students a few minutes to answer the opening question (on slide two) for day two. Today’s opening question is designed to assist the students in reflecting upon how they learn.

Opening Question: Take a few minutes to evaluate your map from yesterday. What aspects of your map do you find helpful? What aspects of your map do you think might need to be improved? Explain how you think this map might help you understand the physical geography of this region better than traditional notes.

Step Four: (20 minutes)

Then, students will continue to add details to their map of Southeast Asia – this time including information regarding climate and weather patterns. As in yesterday’s power point, questions are included in the slides with answers and discussion points in the notes. Have students answer the questions on the back of their maps.

Analyzing Geographic Information & Answering Geographic Questions:

Step Five: (10 - 15 minutes)

Now that the students’ maps are complete, give them a few minutes to study their maps and review the information they have written down. Finally, have them answer the guiding question from day one on the back of their maps (slide 12 of Climate and Weather power point). Their answer should list and describe the major features, explain the factors which shaped or created them, explain the impacts they cause on life in the region, and explain how the features work together to make this region unique.

End the Lesson: 5 minutes

Closing product: Have the students reflect upon their answer to the guiding question from day one and compare that with their answer on day two. Have them answer the following questions before handing in their maps: How did your answer change between yesterday and today? Do you feel more confident in answering the question today than you did yesterday? How did drawing the sketch map help you answer the question?
Questions:

Predict how these two landforms would affect the people living in this region.
- Student answers will vary, but in general the answer being sought is “Peninsulas and islands”. Predictions are based upon student opinion – again, this will vary, but an example might be: “Most people in this area would live fairly close to the ocean. Many people in this area might be engaged in fishing activities or maritime trade.”

Explain how the presence of so many mountains would affect the people who live in this region.
- Mountains tend to isolate groups of people because transportation and communication between groups is difficult. As a result, mountain cultures tend to be very diverse.

Predict which waterway would be the most valuable to control in order to control shipping in the region.
- Predictions will vary, but any well supported answer can be accepted. The Strait of Malacca is the most important waterway due to its strategic location – making the trip from Africa/South Asia much shorter than going all the way around Indonesia.

Based upon what you already know about the geology of Southeast Asia, which type of boundary would you most expect to find here (along the plate boundaries)?
- Subduction boundaries are most likely to be found here due to the presence of a large continental plate (Eurasia) and an oceanic plate (Pacific).

Explain the factors which created the features found in Southeast Asia.
- Each feature will have its own factors, but overall the factor most responsible for creating most of the landforms in Southeast Asia is the collision of numerous plates in this area. The collisions have uplifted some areas, folded others, and created numerous trenches and volcanic arcs throughout the region.
Evaluation/Assessment:
Monitor the students as they complete their maps during class. Questions asked during class and written on the back of the map can be checked for completion. Final Grade will be based upon the completed map and the map analysis:

Rubric: Point Total: 5

<table>
<thead>
<tr>
<th>Content</th>
<th>Not There Yet</th>
<th>Satisfactory</th>
<th>Clearly Outstanding</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 point</td>
<td>2 points</td>
<td>3 points</td>
</tr>
<tr>
<td>Summary merely lists features.</td>
<td>Summary correctly describes most features.</td>
<td>Summary completely and correctly describes each feature.</td>
<td></td>
</tr>
<tr>
<td>Summary makes little to no attempt to analyze formation and distribution of features.</td>
<td>Summary adequately analyzes formation and distribution of most features.</td>
<td>Summary completely analyzes formation and distribution of all features.</td>
<td></td>
</tr>
<tr>
<td>Summary and annotations do not utilize appropriate vocabulary.</td>
<td>Summary and annotations correctly utilize appropriate vocabulary.</td>
<td>Summary and annotations demonstrate mastery of appropriate vocabulary.</td>
<td></td>
</tr>
<tr>
<td>Summary and annotations are difficult to read due to spelling and/or grammar errors.</td>
<td>Summary and annotations are generally free from spelling or grammar errors.</td>
<td>Summary and annotations are largely free from spelling or grammar errors.</td>
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</tr>
<tr>
<td>Map features are missing or incorrectly labeled.</td>
<td>Most map features are correctly labeled.</td>
<td>All map features are correctly labeled.</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Appearance</th>
<th>0.75 Points</th>
<th>1.25 Points</th>
<th>2 Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Map features are not clear and are difficult to read.</td>
<td>Map features are clear and legible.</td>
<td>Map features are clear, legible and attractively drawn.</td>
<td></td>
</tr>
<tr>
<td>Annotations obscure map features.</td>
<td>Annotations are neat and do not obscure map features.</td>
<td>Annotations are neat and enhance the map presentation.</td>
<td></td>
</tr>
<tr>
<td>Map shows minimal effort.</td>
<td>Map shows effort and attention to detail.</td>
<td>Map shows great effort and attention to detail.</td>
<td></td>
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</tbody>
</table>