Teaching Activities

For

Teaching Activities are intended for use at home, in the classroom, and during story-times.
Copyright © 2010 by Arbordale Publishing, formerly Sylvan Dell Publishing

Questions to ask children before reading the book

- What do you think the book is about by looking at the cover (or one or two of the inside illustrations)? *Sometimes it is easy to tell from the cover, other times it is not.*

- What does the cover illustration show?

- Does the title tell you what the book is about?

- How do you think this book might be related to your math, science, or social studies class?

What do children already know?

- Young children are naturally inquisitive and are sponges for information. The whole purpose of this activity is to help children verify the information they know (or think they know) and to get them thinking "beyond the box" about a particular subject.

- The children should write down their "concepts" (or adults for them if the children are not yet writing) on the provided chart found on the next page.

- Use the questions to get children thinking about what they already know. Feel free to add more questions or thoughts according to the child(ren) involved.

What do children already know—activity chart

Ask children to write down what they think they know before reading the book. If the information is verified while reading the book, they check "yes." If the information is wrong, they mark "no" and cross it off, then write the correct information. Have the children note how the information was verified.

What do I think I know?	Yes	No	Verified
Where do Giant pandas live?			Text Illustration Info in FCM Other
What do Giant pandas eat?			Text Illustration Info in FCM Other
Why are Giant pandas endangered?			Text Illustration Info in FCM Other
What does endangered mean?			Text Illustration Info in FCM Other
What is an earthquake?			Text Illustration Info in FCM Other
What can happen during an earthquake?			Text Illustration Info in FCM Other

Use this chart for any other thoughts the children might have.

What do I think I know?	Yes	No	Verified
			Text Illustration Info in FCM Other
			Text Illustration Info in FCM Other
			Text Illustration Info in FCM Other
			Text Illustration Info in FCM Other
			Text Illustration Info in FCM Other
			Text Illustration Info in FCM Other
			Text Illustration Info in FCM Other
			Text Illustration Info in FCM Other

After reading the book – writing prompts & thinking it through

- Did the cover "tell" you what the book was about?

- If not, how does the illustration on the front relate to the story?

- Draw your own cover.

- Write a song.

- Can you think of another title for the book?

- Did the illustrator include anything in the pictures that were not in the story or are there things hidden in the art?

- Write a different ending to the story

- Have you ever had a similar experience or feeling? If so, can you describe how it was alike or different than this story?

- Describe the location of where this story took place. Can you find such a location on a map or globe?

- Who were the main characters? How would you describe them?

- Have you even seen any of these animals? If so, describe where you saw them and what they were doing (if you can remember).

Re-read the book looking for more information

Go back and re-read the book studying each page carefully.

- What, if any, facts are mentioned in the text?

- What can be seen or inferred from the illustrations that is not or are not mentioned in the text?

- What, if anything, can be inferred from the text?

- Pause during second readings and ask the child(ren) if they remember what happens next.

- What would happen if a character did something different or if something different happened to the character? Would it/could it change the story?

As you re-read the story, write down any words that relate to the five senses.

Feel	Taste	See	Smell	Hear

Comprehension Questions

What happened when the mother Giant panda and her cub were resting in the tree?

Why did they leave the reserve?

Why were they afraid?

Why didn't they just go home to the reserve?

What was happening around them?

Where did they hide and why?

What did they eat and drink?

Why was the cub (Tengfei) scared to eat?

Who was making the noise in the woods?

Why did the men shoot the pandas and what did they shoot them with?

What happened to the pandas after they were shot?

Where were the pandas when they woke up?

How did they feel when they woke up?

What do children already know—activity conclusion

- Do the children have any more questions about endangered Giant pandas or earthquakes? If so, write them down on the chart.

- Identify whether the information was verified and how.

- If the concept is correct, make a note of how the information was confirmed (illustration, in text, or the "For Creative Minds" section)

- If the concept was not correct, what IS the correct information – with confirmation notes as above.

- If the concept was neither confirmed nor denied, look the information up in a reliable source and note where it was confirmed.

- Wrap it all up by adding notes with new information that the children learned either through the reading or the research while looking up something else.

Language Arts

Developing a Vocabulary "Word Wall"

If using the book as a way to introduce a topic or subject, this is also a great way to introduce subject-related vocabulary words. If you don't have the time (or the inclination) to develop the "word wall" by playing the Vocabulary Game (below), we have provided a vocabulary list for you.

Vocabulary words for the "word wall" may be written on index cards, on a poster board, or on a chalk board. If writing on poster board or chalk board, you might want to sort into nouns, verbs, etc. right away to save a step later. Leaving the words posted (even on a refrigerator at home) allows the children to see and think about them frequently.

Vocabulary Game

This activity is designed to get children thinking of vocabulary words, which will then be used as the beginning vocabulary list for a science lesson.

Select an illustration and give children a specific length of time (five minutes?) to write down all the words they can think of about the particular subject. *If you do not have classroom sets of the book, it is helpful to project an illustration on a white board. Check our website (www.ArbordalePublishing.com) for book "previews" that may be used for this purpose.*

The children's word list should include anything and everything that comes to mind, including nouns, verbs, and adjectives. At the end of the time period, have each child take turns reading a word from his/her list. If anyone else has the word, the reader does nothing. If however, the reader is the only one with the word, he/she should circle it. While reading the list, one person should write the word on a flashcard or large index card and post it on a bulletin board or wall.

At the end, the child with the most words circled "wins." And you have a start to your science vocabulary list. *Note if a child uses an incorrect word, this is a good time to explain the proper word or the proper usage.*

Putting it all together

The following activities may be done all together or over a period of several days.

- Continue to add words to the vocabulary list as children think of them.
- Sort vocabulary words into nouns, verbs, adjectives, etc. and write what they are on the backs of the cards. When the cards are turned over, all you will see is "noun," etc. *(These can then be used to create silly sentences, below.)*
- Now sort the vocabulary words into more specific categories. For example, nouns can be divided into plants, animals, rocks, minerals, etc. They can be divided into living/non-living, or into habitat-related words.
- Have children create sentences using their vocabulary words. Each sentence could be written on a separate slip of paper.
- Have children (individually or in small groups) sort and put sentences into informative paragraphs or a story.

- Edit and re-write paragraphs into one informative paper or a story.

PANDAS' EARTHQUAKE ESCAPE

Suggested Vocabulary List

Word	Definition	Part of Speech
alone	separate, apart, isolated	adjective
big	large (size, height, or amount)	adjective
black	a color, the opposite of white	adjective
fallen	having dropped	adjective
four	a number	adjective
frightened	scared	adjective
Giant	of great size, really big	adjective
great	large in number or size	adjective
hungry	state of having hunger	adjective
isolated	alone, separated from others	adjective
light	pale in color, well-lit	adjective
longer	a considerable time or distance	adjective
lost	no longer owned, no longer found	adjective
major	of greater size or importance	adjective
micro	very small (think microscope)	adjective
minor	lesser in size or importance	adjective
moderate	medium	adjective
more	additional or greater quantity or time	adjective
pink	a color	adjective
small	limited size, opposite of large	adjective
strong	powerful, a great force	adjective
white	a color, the opposite of black	adjective
down	from higher to lower, on the ground	adverb
quickly	with speed	adverb
suddenly	without warning	adverb
aftershock	One of many earthquakes that often occur during the days to months after some larger earthquake (mainshock) has occurred. Aftershocks occur in the same general region as the mainshock and are believed to be the result of minor readjustments of stress at places in the fault zone.	noun
bamboo	a woody grass, panda's best food, the wood is sometimes used in furniture	noun
boar	male of certain types of animals	noun
cave	a hollow in the earth, side of a hill	noun
core	the Earth's central region, believed to be composed mostly of iron	noun
crust	solid, outer layers of the earth, including the rocks	noun
cub	young of certain types of animals (lions, tigers, bears)	noun

day	the time between sunrise and sunset, 2. the time it takes the Earth to rotate on its axis	noun
earthquake	a sudden movement of the earth's crust caused by the release of stress accumulated within the earth's crust	noun
epicenter	the location on the surface of the Earth directly above the place where an earthquake originates	noun
forest	a diverse community of plants and animals in which trees are the most easily seen	noun
fragmentation	broken into tiny pieces	noun
groups	a collection of people or things	noun
habitat	an address: a combination of the physical environment - the rocks and land and water - as well as all of the organisms that live in the same place	noun
magnitude	A numerical expression of the amount of energy released by an earthquake, determined by measuring earthquake waves on standardized recording instruments (seismographs.)	noun
mainshock	The largest in a series of earthquakes occurring closely in time and space. The mainshock may be preceded by foreshocks or followed by aftershocks.	noun
mantle	The zone of the earth below the crust and above the core.	noun
milk	a white-ish liquid secreted by mammals to feed their young	noun
noise	sounds, especially loud, harsh sounds	noun
Plate boundaries	The edges of plates or the junction between plates. See also plates, convergent (both collision and subduction), spreading, and transform boundaries.	noun
plate tectonics	a theory that explains the global distribution of earthquakes, volcanoes, continental drift, and mountain building	noun
Plates	puzzle-like pieces of crust and brittle uppermost mantle that cover the Earth's surface. The plates move very slowly over, or possibly with, a viscous layer in the mantle at rates of a few centimeters per year.	noun
puzzle	a toy or game that needs time and patience to put together	noun
reserve	land put aside by the government with the intent to protect a habitat and the wildlife living there	noun
Richter Scale	An earthquake magnitude scale	noun
seismograph	A sensitive instrument that can detect, amplify, and record ground vibrations too small to be perceived by human beings	noun
size	physical dimensions, magnitude	noun
sow	female of certain types of animals	noun
tree	a type of plant with a permanent woody stem	noun
tsunami	A tsunami is a series of very long wavelength ocean waves caused by the sudden displacement of water by earthquakes, landslides, or submarine slumps.	noun
wave	A disturbance, oscillation, or vibration, either of a medium and moving through that medium (such as water and sound waves), or of some quantity with different values at	noun

	different points in space, moving through space	
zoo	a park-like area housing animals for public viewing, many have conservation and education missions	noun
panda	(Giant) a black and white bear from the mountains of China where bamboo grows, endangered	noun
mountain	A massive and usually steep-sided, raised portion of the Earth's surface. Can occur as single peaks or as part of a long chain. They can form through volcanic activity, by erosion, or by uplift of the continental crust when two tectonic plates collide.	noun
night	time of darkness between sunset and sunrise	noun
born	brought to life	verb
break	to split into pieces	verb
camouflage	to conceal or hide by disguise or coloring	verb
continue	keep going	verb
destroy	to put an end to, to kill	verb
drink	to take liquid in through the mouth	verb
eat	to bite and swallow food as nourishment	verb
fall	to drop, to lower	verb
feed	to give food	verb
feel	to sense by touch	verb
follow	to come after in time or location	verb
hang	suspend, fasten from the top	verb
hunt	to search for to kill	verb
move	to pace from one place or position to another	verb
push	to press upon or against (a thing) with force in order to move it away	verb
rest	sleep, relax	verb
run	to move quickly, faster than walk	verb
shake	to move unsteadily	verb
sleep	to rest, to be dormant	verb
walk	to move by foot	verb
wander	to move around without a specific purpose or goal	verb

PANDAS' EARTHQUAKE ESCAPE

Silly Sentence Structure Activity—Giant panda related

This is a fun activity that develops both an understanding of sentence structure and the science subject. Use words from the "word wall" to fill in the blanks. After completing silly sentences for fun, have children try to fill in the proper words by looking for the information in the book.

Giant panda _____s drink _____ from their mothers
        noun   noun

so they are mammals. They live high in the _____s in China
                                            noun

where _____ grows.
        noun

Giant pandas are _____ because of over-hunting and habitat
                 adjective

loss. Wild Giant pandas now live in small, _____ areas.
                                           adjective

When _____ plants die off, the Giant pandas cannot
     noun   adjective

_____ from one bamboo area to another because of
verb

_____ loss and _____.
noun   noun

_____ around the world help Giant pandas with breeding
noun

programs and protecting their habitats.

Giant panda _____s are _____ with short, white fur
        noun   verb

and about the size of a stick of butter when _____. The
                                             verb

_____ fur grows in when they are about a month old.
adjective

PANDAS' EARTHQUAKE ESCAPE

Silly Sentence Structure Activity—Earthquake related

This is a fun activity that develops both an understanding of sentence structure and the science subject. Use words from the "word wall" to fill in the blanks. After completing silly sentences for fun, have children try to fill in the proper words by looking for the information in the book.

An _____ can happen at any time – _____ or
    noun   noun

_____.
   noun

The earth is made up of "_____-like pieces" called
                      noun

_____ _____. The _____ are always trying
 noun   noun   noun

to push past each other but are jammed together. Most of the time, they can't _____. Earthquakes _____ when the
          verb   verb

_____ move _____. We feel the earth's vibrations.
 noun   adverb

Aftershocks are _____ earthquakes or _____ that
            Adjective   noun

happen after the main quake. _____ might _____ right
                  noun   verb

away, over a few days, or even years after the _____
                              Adjective

earthquake! The _____er or _____er the main
          adjective   adjective

earthquake, the more aftershocks you will probably have, and the

_____er you might feel them.
 adjective

PANDAS' EARTHQUAKE ESCAPE

Sequence Sentence Strips

Preparation: Cut into sentence strips, laminate if desired, and place in a "center." Have children put the events in order. Children may work alone or in small groups. Cards are in order but should be mixed up when cut apart.

--✂--

Liling and Tengfei were resting in a tree.

--✂--

The tree began to sway and the branch fell down.

--✂--

Liling and Tengfei were not hurt but didn't know what was happening.

--✂--

--✂--

The ground shook again and the wall at their reserve crashed down.

--✂--

They ran into the forest.

--✂--

The ground shook again and the wall at their reserve crashed down.

--✂--

Tengfei was scared. He stopped and looked around. He was all alone.

--✂--

---✂---

He saw his mother's black and white fur through the trees and ran to her.

---✂---

The two pandas ran deeper and deeper into the woods.

---✂---

The ground shook and shook. They hid in a cave.

---✂---

They were hungry in the morning but could not find any bamboo to eat. They ate plant bulbs and drank water from a stream.

---✂---

They tried to find their way home but were lost.

---✂---

--✂--

They wandered in the forest for two days.

--✂--

The pandas heard shouts. They were scared and started to run away.

--✂--

One of the men shot the two pandas with a tranquilizer gun. The pandas fell asleep.

--✂--

The men carried the sleeping pandas back to the reserve.

--✂--

The pandas woke up back in their reserve home with lots of bamboo to eat.

--✂--

PANDAS' EARTHQUAKE ESCAPE

Word Search

Find the hidden words. Even non-reading children can try to match letters to letters to find the words! Easy – words go up to down or left to right.

For older children, identify the coordinates of the first letter in each word (number, letter).

	A	B	C	D	E	F	G	H	I	J
1	A	B	A	M	B	O	O	W	L	A
2	S	C	H	T	L	I	T	P	A	N
3	C	V	U	L	A	X	R	A	S	O
4	A	D	N	O	I	S	E	N	H	I
5	R	C	G	S	O	N	E	D	A	S
6	E	A	R	T	H	Q	U	A	K	E
7	D	V	Y	C	U	B	O	N	I	G
8	O	E	S	D	G	R	O	U	N	D
9	W	I	F	A	L	L	I	N	G	A
10	N	V	I	B	R	A	T	I	O	N

EARTHQUAKE	VIBRATION
TREE	PANDA
LOST	BAMBOO
CAVE	HUNGRY
SCARED	NOISE
SHAKING	GROUND
FALLING	CUB

Science
Adaptations: Physical and Behavioral

Adaptations help animals to live in their habitat: to get food and water, to protect themselves from predators, to survive weather, and even to help them make their homes. The following is not a complete list by any means, but should help give an idea about what various adaptations are.

- Physical Adaptations:
  - body parts
    - teeth – depend on type of food it eats
    - feet, flippers, fins – ability to move
    - placement of eyes
    - how does it get oxygen (gills, lungs, osmosis)
  - body covering & insulation
    - hair
    - feathers
    - fur
    - scales
    - blubber
  - Camouflage
    - color of skin or pattern to blend into background.
    - mimicry: pretending to be something else to fool predators
- Behaviors
  - instinct: behaviors or traits that the animals are born with
  - learned behavior: traits that animals learn to improve their chances of survival or to make their life easier
  - social groups versus solitary living
  - communication with other animals
  - defense/camouflage
  - reaction to cycles (day/night, seasons, tides, etc.)
  - migration: the seasonal movement of animals from one location to another
  - hibernation: a long, deep sleep in which the animal's breathing and heartbeat are slower than usual.

Try to answer the adaptation questions about Giant pandas on the following pages.

Giant panda

Have you ever seen one of these animals in real life?   _____ yes   _____ no

If so, where did you see it? _____

What are the babies called? _____

How are the animals born?   _____ hatched from eggs   _____ born alive

How many brothers and sisters might be born at the same time?   _____

How big is the baby (length, height, weight, etc.) when born?   _____

Who raises the young: _____ both parents _____ mother only   _____ father only

                                    _____ neither parent – the baby survives on pure instinct

What does the baby eat and for how long?   _____

_____

How long will the babies stay with the parent (if parents are involved)?   _____

When is the "baby" considered an adult?   _____

How will it find a mate and have babies?   _____

_____

Some animals are only born at specific times of the year (to coincide with food availability). This baby is born: _____ anytime of the year or _____ usually in the month of _____ or the season of _____

To what animal class does it belong? Circle the answer:

Vertebrate:	**Invertebrate:**	
fish	arthropod (insects, crustaceans & arachnids)	
mammal	sponges	mollusk
bird	flatworms	roundworms
reptile	segmented worm	cnidarian
amphibian	echinoderms	

In what type of habitat and ecosystem does this animal live? _____

_____

What plant does it need to survive in its habitat and why? _____

_____

How does it move and what parts of its body does it use to move? _____

_____

What are some of the behaviors that were discussed in the story? _____

_____

_____

How does it see? _____

How does it hear? _____

What does it eat? _____

How does it get its food? _____

_____

How does it protect itself from predators? _____

_____

Where does the animal live and does it make a "house?" (burrow, nest, etc.) _____

_____

Does it live alone or with a group? _____

How does it "communicate" with others of its kind? _____

_____

How does it sleep?_____

When does it sleep?_____

Is food easily available all year?_____

How does the animal deal with seasonal changes (if applicable)? _____

_____

In Danger!

Endangered A plant or animal that is in danger of becoming extinct.

Extinct No longer found anywhere on Earth; completely disappeared.

Threatened A plant or animal that may become endangered in the near future.

Species of Concern or Monitored A species that is being watched for possible listing. There is no legal protection for this level.

State protected an individual state's declaration of protection

Sustainable able to sustain a population

Watch List a species being observed for possible listing as threatened or endangered

Causes of plants and animals in danger:

Which of the following have affected the Giant pandas?

- Changing habitat
    - habitat destruction due to development, roads, agriculture, etc.
    - fragmentation (breaking up) of habitat, making it difficult for animals to get to food, water, or nesting areas
    - loss of nesting areas
- Over fishing or hunting
    - Advanced technology allows fishermen to see where the fish are, increasing their catch—sometimes beyond what is sustainable
    - Some animals were hunted on purpose, due to fear – such as wolves
- Pollution
    - including fertilizer and chemicals
    - run-off from construction and development
    - animals may eat garbage "thinking" that it is food (i.e. plastic bags being mistaken for jellyfish)
    - animals get trapped in garbage
- Missing link in the food chain due to another extinction

Science Journal

Have children draw a picture to define the vocabulary word or concept.

endangered

Loss of habitat

Habitat fragmentation

www.ArbordalePublishing.com   25

earthquake

aftershock

Plate tectonics

What To Do In Case of Earthquake:

Before the earthquake (or other natural disaster) hits!

Have a family plan:
- Where will you meet? If at home, pick a place in and out of the house, depending on the type of disaster. For example, if your house is on fire, you need to get out. Pick a location for all family members to go. If home during an earthquake, have a meeting spot (under the dining room table) that you can get to after the initial shaking stops.
- Make sure that everyone knows what to do if the earthquake happens while you are at school. How will you get home? How will your parents find you?
- Select a family member (grandparent, aunt, or uncle) who lives out of the area to serve as "communicator." Make sure that person has a list of all phone numbers (work, home, cell of your family, close neighbors, and friends. Make sure that everyone in your family knows how to reach that person…including you!
- Practice (but don't really do it) calling 9-1-1 and learn when you need to do it.

Have family drills (include babysitters or neighbors!):
- Practice "duck, cover, and hold on" to be safe during an earthquake.
- Identify safe spots in every room, such as under sturdy desks and tables.
- Practice dropping fire ladders out of second story windows if necessary and actually climb down! You don't want to be afraid of that during an actual emergency.
- Go to your meeting spots (inside and outside the house). Make sure you know how you'll get out of the house if doors are blocked or different parts of the house are on fire.
- Practice knocking and whistling (if you can) to help rescue workers find you if they have to.
- Discuss what you would do in every room of your house. For example, if you are in the dining room when an earthquake hits, duck & cover under the table. If you are in a playroom and there is no table, duck down next to a couch or other large piece of furniture. Plan to avoid areas close to large windows or pieces of furniture with glass as flying glass could be very dangerous.

Have a disaster bag with (boating stores sell large, orange, waterproof bags or use a backpack):
- Working flashlights (keep one by each bed, too)
- Adequate supplies of medications that you or family members are taking (including Tylenol or Motrin) as well as medical insurance cards.
- First-aid kit and handbook
- Space blanket or blanket for each family member for warmth (may be part of a first-aid kit)
- Some old towels
- Crescent and pipe wrenches to turn off gas and water supplies
- Non-electric can opener
- Portable radio with extra batteries
- Copies of insurance papers and important documents
- Waterproof, heavy-duty garbage bags (can be used in a variety of ways)
- Sealable plastic bags
- A few books, card games, coloring books with crayons, etc. to keep busy
- Work gloves
- Dust masks
- Cash (small bills)

Emergency supplies to always have on hand and know EXACTLY where they are (assuming that you can get to them after the quake):

- Fire extinguisher
- Water for each family member for at least two weeks (allow at least 1 gallon per person per day)
- Canned and package foods, enough for several days
- Extra food for pets if necessary
- Grill to cook on outdoors (or a small camp stove)
- Sturdy, closed-toe shoes (these could even be in the disaster bag)

Secure the house:

- Secure any items that might fall from walls or tabletops.
- Put heavier items low on bookshelves.
- Move high, heavy furniture (tall dressers, bookshelves) away from beds or couches in case it falls over during a strong quake.

During the earthquake:

If you are inside a building:

- Duck or drop down and crawl if you have to: the ground might be moving, making it hard and dangerous to run
- Cover: Get under a desk or table and stay there.
- Hold on: Even if the furniture starts to slide, hold on and stay under it. If the building collapses, you'll be in an air pocket, giving you a better chance of survival.
- If you are in a room with no table, cover your face and crouch in an inside corner or a strong doorway.
- Stay away from glass and large windows if you can.
- If you are in bed, stay there. Hold on and put a pillow over your head to protect it.

If you are outside, move into an open area away from buildings and power lines.

Do: Cover your face and breathe through a shirt or cloth to keep dust out of your lungs.

Do not: use elevators or light a match (there could be gas leaks and you could start a fire)

After the earthquake:

If you can get to the rest of your family safely (your meeting place), do so.

If you can't get to your family, ask for help trying to call them or your out-of-town contact (you know the number—right?)

If you are trapped in a collapsed building, save energy until you hear people trying to find you. Then start knocking or whistling.

If you are bleeding, use clothes or cloth around you to press firmly on the cuts to stop blood.

Depending on the strength of the quake, there may not be electricity for several days. You should eat food that might go bad in the refrigerator or freezer and then you'll need food and water from your disaster supplies.

Make sure there are no gas leaks before using a grill or camp stove. Until then, eat cold food.

It could take a while for life to get back to normal, be prepared, and work together with your family and people around you.

Help clean up where you can, other wise, keep busy with your books, games or coloring (remember there's no electricity) from the disaster bag so that your parents can clean up and do what needs to be done.

Protect yourself from broken glass.

Open cabinets carefully as things inside could fall on you when you open them.

If you live close to the ocean, move inland in case of a tsunami (tidal wave).

Open cabinets cautiously. Beware of objects that can fall off shelves.

Stay away from damaged areas.

If a fire breaks out, remember to stop, drop, and roll to get away.

Be prepared for aftershocks, they can be strong too.

It might be a good idea for the family to sleep together for a few nights (maybe under the dining room table!)

Math
Earthquake List 2000-January 21, 2010

The following list of earthquakes comes from USGS Historic World Earthquakes over 6.0 http://earthquake.usgs.gov/earthquakes/world/historical_mag_big.php (as of January 21, 2010) This is where the information in the book was obtained.
Sorted by Magnitude, Magnitude 6.0 and Greater—selected earthquakes of general historic interest
All earthquake dates are UTC (Coordinated Universal Time aka Greenwich Mean Time), not local time. For time conversion information, see http://www.timeanddate.com/worldclock/converter.html

Reading Charts and Maps

There is a lot of information in the chart on the next few pages.

What are the different column headings?

If you wanted to know where a particular earthquake happened, which column would you use?

If you wanted to know the date the earthquake happened, what columns would you use?

If you wanted to know the strongest magnitude in a particular year, which columns would you use?

Was there an earthquake on or around your birthday? If so, where in the world (find on map) and what was the magnitude?

Pick a year and find the strongest and weakest (over 6.0) earthquakes for that year. Find the locations on the map.

Graph it!

Pick any ten of the earthquakes from the chart and graph the strength:

	My Selected Earthquakes	**M**
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

My Earthquake Graph

	M	1	2	3	4	5	6	7	8	9	10
10											
9.9											
9.8											
9.7											
9.6											
9.5											
9.4											
9.3											
9.2											
9.1											
9											
8.9											
8.8											
8.7											
8.6											
8.5											
8.4											
8.3											
8.2											
8.1											
8											
7.9											
7.8											
7.7											
7.6											
7.5											
7.4											
7.3											
7.2											
7.1											
7											
6.9											
6.8											
6.7											
6.6											
6.5											
6.4											
6.3											
6.2											
6.1											
6											

Link from USGS	Year	**Month**	**Date**	**Magnitude**
Offshore Maule Chile	2010	2	27	M 8.8
Ryukyu Islands, Japan	2010	2	26	M 7.0
China-Russia-North Korea Border Region	2010	2	18	M 6.9
Offshore Northern California	2010	2	4	M 5.9
Solomon Islands	2010	1	3	M 7.1
Haiti region	2010	1	12	M 7.0
Offshore Northern California	2010	1	10	M 6.5
Samoa Islands region	2009	9	29	M 8.1
Santa Cruz Islands	2009	10	7	M 7.8
Off West Coast of the South Island, New Zealand	2009	7	15	M 7.8
Vanuatu	2009	10	7	M 7.7
Tonga region	2009	3	19	M 7.6
Near the North Coast of Papua, Indonesia	2009	1	3	M 7.6
Southern Sumatra, Indonesia	2009	9	30	M 7.5
Andaman Islands, India region	2009	8	10	M 7.5
Vanuatu	2009	10	7	M 7.4
East of the Kuril Islands	2009	1	15	M 7.4
Near the North Coast of Papua, Indonesia	2009	1	3	M 7.4
Fiji	2009	11	9	M 7.3
Offshore Honduras	2009	5	28	M 7.3
Kepulauan Talaud, Indonesia	2009	2	11	M 7.2
Near the South Coast of Honshu, Japan	2009	8	9	M 7.1
Java, Indonesia	2009	9	2	M 7.0
Banda Sea	2009	10	24	M 6.9
Banda Sea	2009	8	28	M 6.9
Gulf of California	2009	8	3	M 6.9
Kuril Islands	2009	4	7	M 6.9
Tonga	2009	11	24	M 6.8
Ryukyu Islands, Japan	2009	10	30	M 6.8
Vanuatu	2009	10	8	M 6.8
Celebes Sea	2009	10	7	M 6.8
Southwestern Ryukyu Islands, Japan	2009	8	17	M 6.7
Kepulauan Mentawai region, Indonesia	2009	8	16	M 6.7
New Ireland region, Papua New Guinea	2009	6	23	M 6.7
South Sandwich Islands region	2009	4	16	M 6.7
Queen Charlotte Islands region	2009	11	17	M 6.6
Sumbawa region, Indonesia	2009	11	8	M 6.6
Santa Cruz Islands	2009	10	8	M 6.6
Moro Gulf, Mindanao, Philippines	2009	10	4	M 6.6
Southern Sumatra, Indonesia	2009	10	1	M 6.6
Samoa Islands region	2009	8	30	M 6.6
Izu Islands, Japan region	2009	8	12	M 6.6

Santa Cruz Islands	2009	8	10	M 6.6
Kuril Islands	2009	4	18	M 6.6
Offshore Tarapaca, Chile	2009	11	13	M 6.5
Kermadec Islands Region	2009	5	16	M 6.5
Taiwan	2009	12	19	M 6.4
Crete, Greece	2009	7	1	M 6.4
Offshore Carabobo, Venezuela	2009	9	12	M 6.3
Vanuatu	2009	6	2	M 6.3
Central Italy	2009	4	6	M 6.3
Hindu Kush region, Afghanistan	2009	10	29	M 6.2
Bhutan	2009	9	21	M 6.1
Near the South Coast of Honshu, Japan	2009	8	10	M 6.1
Costa Rica	2009	1	8	M 6.1
Eastern Sichuan, China	2008	5	12	M 7.9
Sea of Okhotsk	2008	7	5	M 7.7
Minahasa, Sulawesi, Indonesia	2008	11	16	M 7.4
Simeulue, Indonesia	2008	2	20	M 7.4
Sea of Okhotsk	2008	11	24	M 7.3
Loyalty Islands	2008	4	9	M 7.3
Xinjiang-Xizang border region	2008	3	20	M 7.2
Kepulauan Mentawai region, Indonesia	2008	2	25	M 7.2
Macquarie Island region	2008	4	12	M 7.1
Kermadec Islands, New Zealand	2008	9	29	M 7.0
Off the East Coast of Honshu, Japan	2008	7	19	M 7.0
South Sandwich Islands region	2008	6	30	M 7.0
Vanuatu	2008	9	8	M 6.9
Eastern Honshu, Japan	2008	6	13	M 6.9
Philippine Islands region	2008	3	3	M 6.9
Southern Greece	2008	2	14	M 6.9
Northern Mid-Atlantic Ridge	2008	2	8	M 6.9
Hokkaido, Japan region	2008	9	11	M 6.8
Eastern Honshu, Japan	2008	7	23	M 6.8
Guam region	2008	5	9	M 6.8
Near the East Coast of Honshu, Japan	2008	5	7	M 6.8
South Sandwich Islands region	2008	2	23	M 6.8
Kermadec Islands region	2008	12	9	M 6.8
Kyrgyzstan	2008	10	5	M 6.6
Andreanof Islands, Aleutian Islands, Alaska	2008	5	2	M 6.6
Andreanof Islands, Aleutian Islands, Alaska	2008	4	16	M 6.6
South Sandwich Islands region	2008	2	10	M 6.6
Queen Charlotte Islands region	2008	1	5	M 6.6
Oaxaca, Mexico	2008	2	12	M 6.5
Pakistan	2008	10	28	M 6.4
Greece	2008	6	8	M 6.4

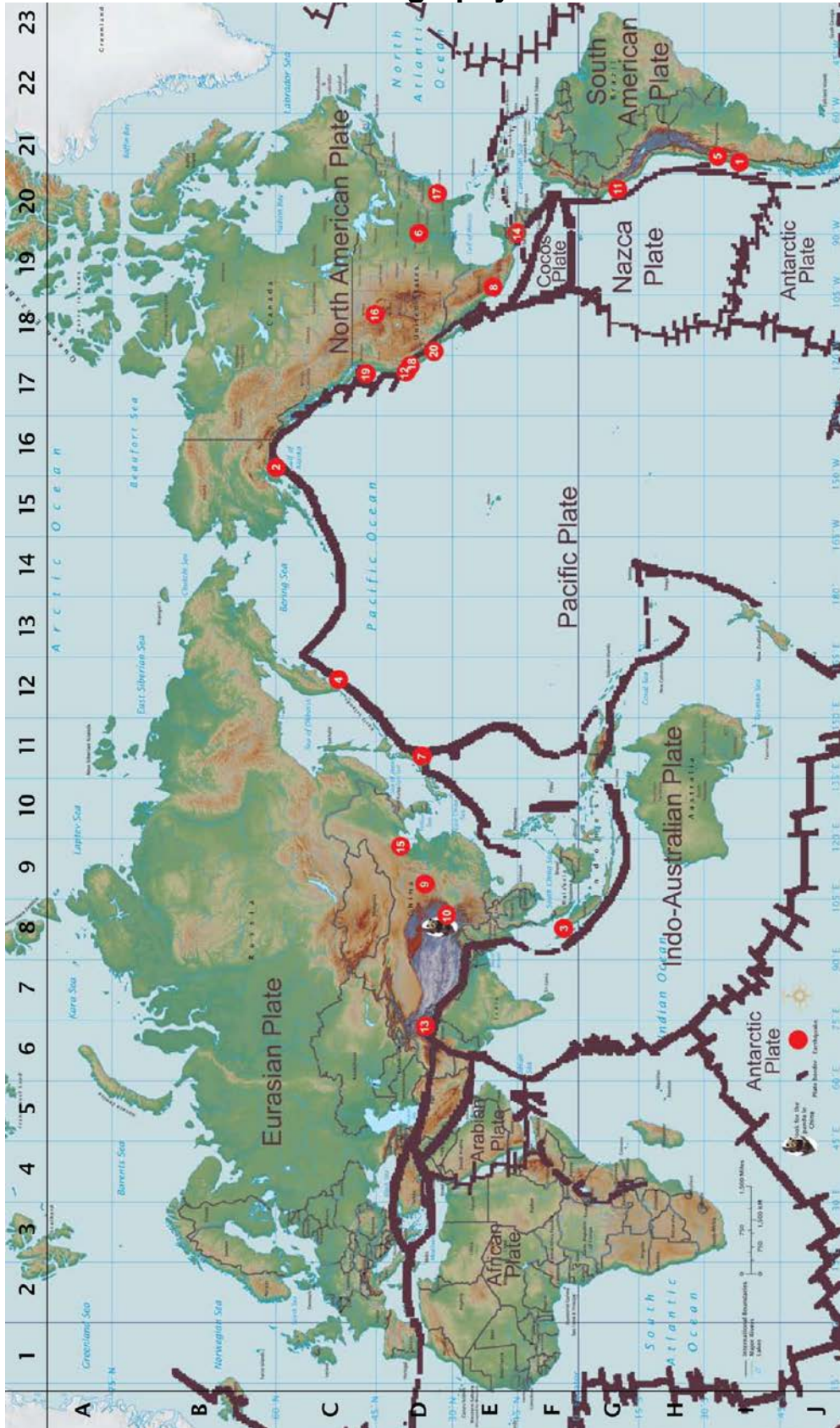|			
Vanuatu	2008	3	12	M 6.4
Eastern Xizang	2008	10	6	M 6.3
Tarapaca, Chile	2008	2	4	M 6.3
Nevada	2008	2	21	M 6.0
Southern Sumatra, Indonesia	2007	9	12	M 8.5
East of the Kuril Islands	2007	1	13	M 8.1
Solomon Islands	2007	4	1	M 8.1
Near the Coast of Central Peru	2007	8	15	M 8.0
Kepulauan Mentawai region, Indonesia	2007	9	12	M 7.9
South of the Fiji Islands	2007	12	9	M 7.8
Antofagasta, Chile	2007	11	14	M 7.7
Molucca Sea	2007	1	21	M 7.5
Mariana Islands region	2007	9	28	M 7.5
Java, Indonesia	2007	8	8	M 7.5
Martinique Region, Windward Islands	2007	11	29	M 7.4
Auckland Islands, New Zealand region	2007	9	30	M 7.4
Andreanof Islands, Aleutian Islands, Alaska	2007	12	19	M 7.2
Pagan Region, Northern Mariana Islands	2007	10	31	M 7.2
Santa Cruz Islands	2007	9	2	M 7.2
Vanuatu	2007	8	1	M 7.2
Vanuatu	2007	3	25	M 7.1
West of Macquarie Island	2007	1	30	M 6.9
South of the Mariana Islands	2007	9	30	M 6.9
Molucca Sea	2007	7	26	M 6.9
Eastern New Guinea Region, Papua New Guinea	2007	11	22	M 6.8
Peru-Ecuador border region	2007	11	16	M 6.8
Southern Sumatra, Indonesia	2007	10	24	M 6.8
South Island of New Zealand	2007	10	15	M 6.8
New Ireland Region, Papua New Guinea	2007	9	26	M 6.8
Near the west coast of Colombia	2007	9	10	M 6.8
Sea of Japan	2007	7	16	M 6.8
Antofagasta, Chile	2007	12	16	M 6.7
Southern Sumatra, Indonesia	2007	9	20	M 6.7
Andreanof Islands, Aleutian Islands, Alaska	2007	8	2	M 6.7
Bougainville region, Papua New Guinea	2007	6	28	M 6.7
Offshore Guatemala	2007	6	13	M 6.7
Near the West Coast of Honshu,Japan	2007	3	25	M 6.7
Off east coast of the North Island, New Zealand	2007	12	20	M 6.6
Solomon Islands	2007	11	27	M 6.6
North of Macquarie Island	2007	11	10	M 6.6
Auckland Islands, New Zealand region	2007	9	30	M 6.6
Near the west coast of Honshu, Japan	2007	7	16	M 6.6
Kermadec Islands, New Zealand	2007	1	31	M 6.5
Sumbawa Region, Indonesia	2007	11	25	M 6.5

Southeast of Loyalty Islands	2007	9	28	M 6.5
Solomon Islands	2007	8	16	M 6.5
Andreanof Islands, Aleutian Islands, Alaska	2007	8	15	M 6.5
Southern Sumatra, Indonesia	2007	3	6	M 6.4
Fox Islands, Aleutian Islands, Alaska	2007	12	26	M 6.4
Philippine Islands region	2007	8	20	M 6.4
Taiwan region	2007	9	6	M 6.2
Kuril Islands	2006	11	15	M 8.3
Tonga	2006	5	3	M 8.0
South of Java, Indonesia	2006	7	17	M 7.7
Koryakia, Russia	2006	4	20	M 7.6
Banda Sea	2006	1	27	M 7.6
Kermadec Islands Region	2006	5	16	M 7.4
East of South Sandwich Islands	2006	1	2	M 7.4
Taiwan region	2006	12	26	M 7.1
Scotia Sea	2006	8	20	M 7.0
Mozambique	2006	2	22	M 7.0
Taiwan region	2006	12	26	M 6.9
Samoa Islands Region	2006	9	28	M 6.9
Santiago del Estero, Argentina	2006	11	13	M 6.8
Bougainville Region, Papua New Guinea	2006	9	1	M 6.8
Nias Region, Indonesia	2006	5	16	M 6.8
Near the Coast of Central Peru	2006	10	20	M 6.7
New Britain region, Papua New Guinea	2006	10	17	M 6.7
Hawaii region, Hawaii	2006	10	15	M 6.7
Seram, Indonesia	2006	3	14	M 6.7
Southern Greece	2006	1	8	M 6.7
Gulf of California	2006	1	4	M 6.6
South of the Fiji Islands	2006	2	26	M 6.4
Kyushu, Japan	2006	6	11	M 6.3
Java, Indonesia	2006	5	26	M 6.3
Western Iran	2006	3	31	M 6.1
Northern Sumatra, Indonesia	2005	3	28	M 8.6
Tarapaca, Chile	2005	6	13	M 7.8
Pakistan	2005	10	8	M 7.6
New Ireland Region, Papua New Guinea	2005	9	9	M 7.6
Northern Peru	2005	9	26	M 7.5
Off the Coast of Northern California	2005	6	15	M 7.2
Near the East Coast of Honshu, Japan	2005	8	16	M 7.2
Nicobar Islands, India Region	2005	7	24	M 7.2
Banda Sea	2005	3	2	M 7.1
Celebes Sea	2005	2	5	M 7.1
Off the East Coast of Honshu, Japan	2005	11	14	M 7.0
Nias Region, Indonesia	2005	5	19	M 6.9

Location	Year	Month	Day	Magnitude
Potosi, Bolivia	2005	11	17	M 6.9
Rat Islands, Aleutian Islands, Alaska	2005	6	14	M 6.8
Simeulue, Indonesia	2005	2	26	M 6.8
Lake Tanganyika Region, Congo-Tanzania	2005	12	5	M 6.8
Vanuatu	2005	2	8	M 6.7
Off the West Coast of Northern Sumatra	2005	1	1	M 6.7
Nias Region, Indonesia	2005	5	14	M 6.7
Southeast of the Loyalty Islands	2005	4	11	M 6.7
Kepulauan Mentawai Region, Indonesia	2005	4	10	M 6.7
Nias Region, Indonesia	2005	7	5	M 6.7
Off the Coast of Northern California	2005	6	17	M 6.6
Kyushu, Japan	2005	3	20	M 6.6
State of Yap, Fed. States of Micronesia	2005	1	16	M 6.6
New Britain region, Papua New Guinea	2005	12	11	M 6.6
New Britain region, Papua New Guinea	2005	9	29	M 6.6
Near the Coast of Nicaragua	2005	7	2	M 6.6
Sulawesi, Indonesia	2005	2	19	M 6.5
Hindu Kush Region, Afghanistan	2005	12	12	M 6.5
Near the East Coast of Honshu, Japan	2005	12	2	M 6.5
Simeulue, Indonesia	2005	11	19	M 6.5
Central Iran	2005	2	22	M 6.4
Near the East Coast of Honshu, Japan	2005	10	19	M 6.3
Southern Iran	2005	11	27	M 6.0
Sumatra-Andaman Islands	2004	12	26	M 9.1
North of Macquarie Island	2004	12	23	M 8.1
Kepulauan Alor, Indonesia	2004	11	11	M 7.5
Near the South Coast of Honshu, Japan	2004	9	5	M 7.4
Irian Jaya, Indonesia	2004	2	7	M 7.3
Southern Sumatra, Indonesia	2004	7	25	M 7.3
Near the West Coast of Colombia	2004	11	15	M 7.2
Near the South Coast of Western Honshu, Japan	2004	9	5	M 7.2
Papua, Indonesia	2004	11	26	M 7.1
Off West Coast of South Island, N.Z.	2004	11	22	M 7.1
Irian Jaya, Indonesia	2004	2	5	M 7.0
Hokkaido, Japan Region	2004	11	28	M 7.0
Near the Coast of Nicaragua	2004	10	9	M 7.0
Solomon Islands	2004	11	9	M 6.9
Kamchatka Peninsula, Russia	2004	6	10	M 6.9
Cayman Islands Region	2004	12	14	M 6.8
Hokkaido, Japan Region	2004	12	6	M 6.8
Solomon Islands	2004	10	8	M 6.8
Southeastern Alaska	2004	6	28	M 6.8
Solomon Islands	2004	11	11	M 6.7
Vancouver Island, Canada Region	2004	11	2	M 6.7

Location	Year	Month	Day	Magnitude
Taiwan region	2004	10	15	M 6.7
Seram, Indonesia	2004	1	28	M 6.7
Near the West Coast of Honshu, Japan	2004	10	23	M 6.6
Near the South Coast of Honshu, Japan	2004	9	6	M 6.6
Bio-Bio, Chile	2004	5	3	M 6.6
Hindu Kush Region, Afghanistan	2004	4	5	M 6.6
Mindoro, Philippines	2004	10	8	M 6.5
Off the East Coast of Honshu, Japan	2004	5	29	M 6.5
Strait of Gibraltar	2004	2	24	M 6.4
Costa Rica	2004	11	20	M 6.4
Leeward Islands	2004	11	21	M 6.3
Taiwan region	2004	11	8	M 6.3
Northern Iran	2004	5	28	M 6.3
Central California	2004	9	28	M 6.0
Hokkaido, Japan Region	2003	9	25	M 8.3
Rat Islands, Aleutian Islands, Alaska	2003	11	17	M 7.8
Scotia Sea	2003	8	4	M 7.6
Carlsberg Ridge	2003	7	15	M 7.6
Offshore Colima, Mexico	2003	1	22	M 7.6
Solomon Islands	2003	1	20	M 7.3
Southwestern Siberia, Russia	2003	9	27	M 7.3
Southeast of the Loyalty Islands	2003	12	27	M 7.3
South Island of New Zealand	2003	8	21	M 7.2
Amazonas, Brazil	2003	6	20	M 7.1
Rat Islands, Aleutian Islands, Alaska	2003	3	17	M 7.1
Off the East Coast of Honshu, Japan	2003	10	31	M 7.0
Halmahera, Indonesia	2003	5	26	M 7.0
Near the East Coast of Honshu, Japan	2003	5	26	M 7.0
Rat Islands, Aleutian Islands	2003	6	23	M 6.9
Primor'ye, Russia	2003	7	27	M 6.8
Near the Coast of Central Chile	2003	6	20	M 6.8
Northern Algeria	2003	5	21	M 6.8
New Ireland Region, Papua New Guinea	2003	3	11	M 6.8
Taiwan	2003	12	10	M 6.8
Kermadec islands, New Zealand	2003	5	4	M 6.7
Hokkaido, Japan Region	2003	10	8	M 6.7
Southwestern Siberia, Russia	2003	10	1	M 6.7
New Ireland, Papua New Guinea, region	2003	1	10	M 6.7
Komandorskiye Ostrova, Russia Region	2003	12	5	M 6.7
Myanmar	2003	9	21	M 6.6
New Britain region, Papua New Guinea	2003	6	7	M 6.6
Unimak Island Region, Alaska	2003	2	19	M 6.6
Southeastern Iran	2003	12	26	M 6.6
Vanuatu Islands	2003	11	6	M 6.6

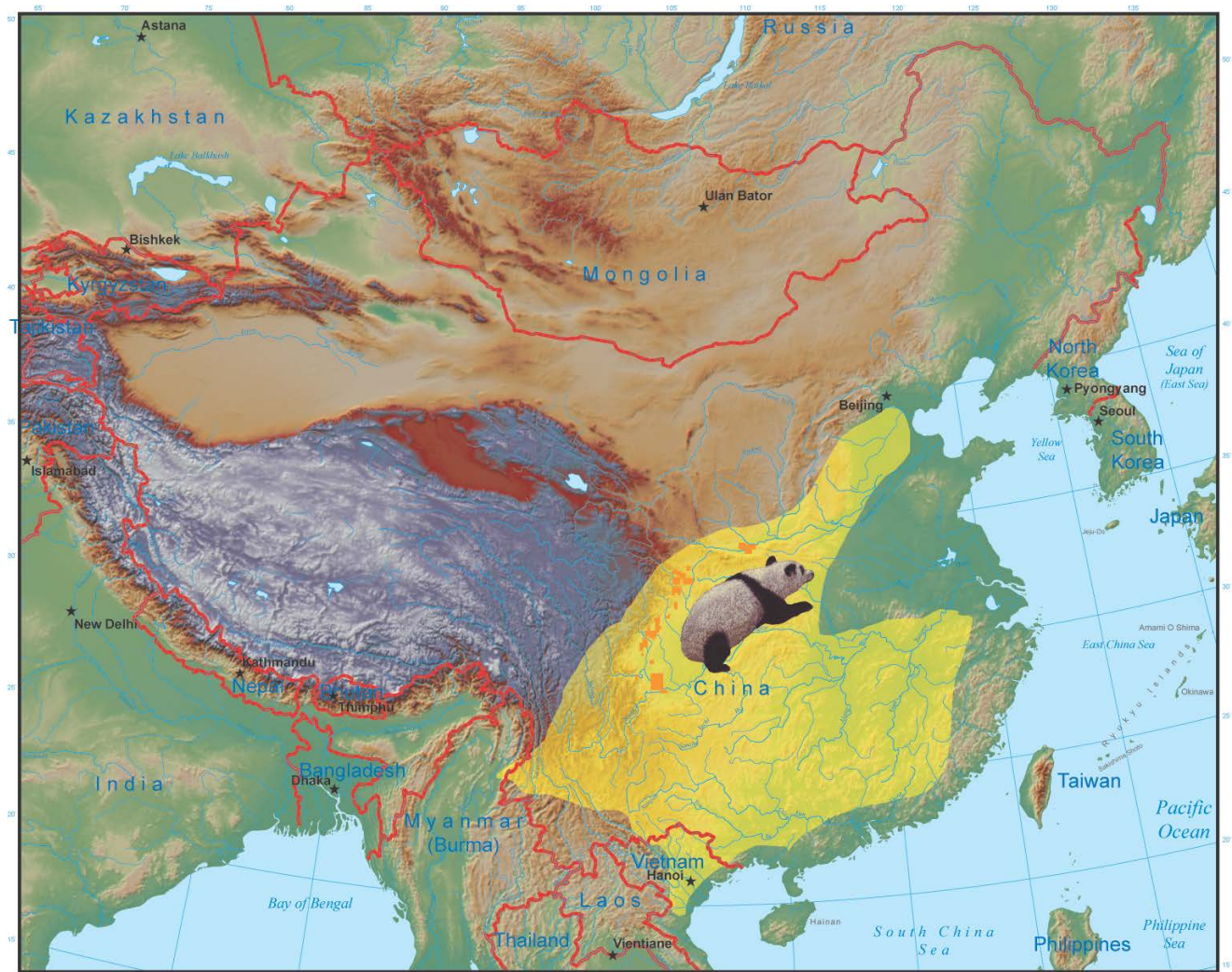|				
San Simeon, California	2003	12	22	M 6.6
Samar, Philippines	2003	11	18	M 6.5
Eastern Turkey	2003	5	1	M 6.4
Dominican Republic Region	2003	9	22	M 6.4
Blanco Fracture ZoneOffshore Oregon,	2003	1	16	M 6.3
Greece	2003	8	14	M 6.3
Southern Xinjiang, China	2003	2	24	M 6.3
Turkey	2003	1	27	M 6.1
Yunnan, China	2003	7	21	M 6.0
Denali Fault, Alaska	2002	11	3	M 7.9
Fiji Islands	2002	8	19	M 7.7
Fiji Islands	2002	8	19	M 7.7
Irian Jaya, Indonesia	2002	10	10	M 7.6
New Guinea, Papua New Guinea	2002	9	8	M 7.6
Mindanao, Philippines	2002	3	5	M 7.5
Hindu Kush Region, Afghanistan	2002	3	3	M 7.4
Northern Sumatera, Indonesia	2002	11	2	M 7.4
Kuril Islands, Russia	2002	11	17	M 7.3
Priamurye-Northeastern China border region	2002	6	28	M 7.3
Vanuatu Islands	2002	1	2	M 7.2
Mariana Islands	2002	4	26	M 7.1
Taiwan region	2002	3	31	M 7.1
Peru-Brazil border region	2002	10	12	M 6.9
Denali, Alaska	2002	10	23	M 6.7
Chile-Argentina Border Region	2002	6	18	M 6.6
Turkey	2002	2	3	M 6.5
Western Iran	2002	6	22	M 6.5
Northwestern Kashmir	2002	11	20	M 6.3
Taiwan	2002	5	15	M 6.2
Lake Tanganyika region	2002	10	24	M 6.2
Hindu Kush Region, Afghanistan	2002	3	25	M 6.1
Southern Italy	2002	9	6	M 6.0
Near the Coast of Peru	2001	6	23	M 8.4
El Salvador	2001	1	13	M 7.7
Near the Coast of Peru	2001	7	7	M 7.6
Gujarat, India	2001	1	26	M 7.6
Mindanao, Philippines	2001	1	1	M 7.5
Nisqually, Washington	2001	2	28	M 6.8
El Salvador	2001	2	13	M 6.6
New Ireland Region, Papua New Guinea	2000	11	16	M 8.0
South Indian Ocean	2000	6	18	M 7.9
Southern Sumatera, Indonesia	2000	6	4	M 7.9
New Ireland Region, Papua New Guinea	2000	11	16	M 7.8
New Britain region, Papua New Guinea	2000	11	17	M 7.6

Geography

Giant pandas live high in the mountains in China where bamboo grows. The historic range was much larger but shrunk due to habitat loss. There are several pockets where wild Giant pandas live but they cannot safely move from one area to another. When the bamboo dies off (as it does every few years), the pandas cannot move to another bamboo area.

Find the where the pandas lived historically. What color represents that on the map?

_____

Where do the wild pandas live now? What color represents that on the map?

_____

In what countries did the pandas once live? In what country do they still live?

_____

China Region

Country Names
★ National Capitals
■ Current Panda Range
■ Historic Panda Range

International Boundaries
Major Rivers
Intermediate Rivers
Lakes

0   125   250 Miles
0   125 250 KM

Answers

Silly Sentence Structure Activity—Giant panda related

Giant panda cubs drink milk from their mothers so they are mammals.

They live high in the mountains in China where bamboo grows.

Giant pandas are endangered because of over-hunting and habitat loss.

Wild Giant pandas now live in small, isolated areas.

When bamboo plants die off, the Giant pandas cannot walk from one bamboo area to another because of habitat loss and fragmentation.

Zoos around the world help Giant pandas with breeding programs and protecting their habitats.

Giant panda cubs are pink with short, white fur and about the size of a stick of butter when born. The black fur grows in when they are about a month old.

Silly Sentence Structure Activity—Earthquake related

An earthquake can happen at any time – day or night.

The earth is made up of "puzzle-like pieces" called plate tectonics.

The plates are always trying to push past each other but are jammed together. Most of the time, they can't move.

Earthquakes happen when the plates move suddenly. We feel the earth's vibrations.

Aftershocks are smaller earthquakes or vibrations that happen after the main quake.

Aftershocks might happen right away, over a few days, or even years after the main earthquake!

The bigger or stronger the main earthquake, the more aftershocks you will probably have, and the longer you might feel them.

Word Search

EARTHQUAKE A,6	VIBRATION B,10
TREE G,2	PANDA H,2
LOST D,3	BAMBOO B,1
CAVE B,5	HUNGRY C,2
SCARED A,2	NOISE J,2
SHAKING I,3	GROUND E,8
FALLING C,9	CUB D,7

PANDAS'
EARTHQUAKE
ESCAPE

PANDAS' EARTHQUAKE ESCAPE

PANDAS' EARTHQUAKE ESCAPE

45