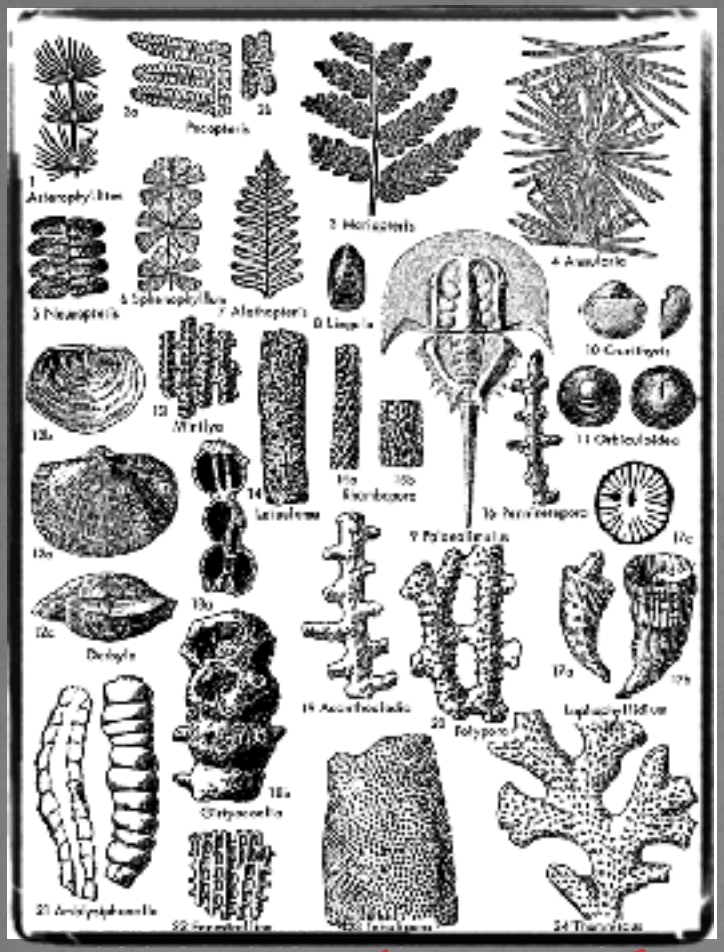

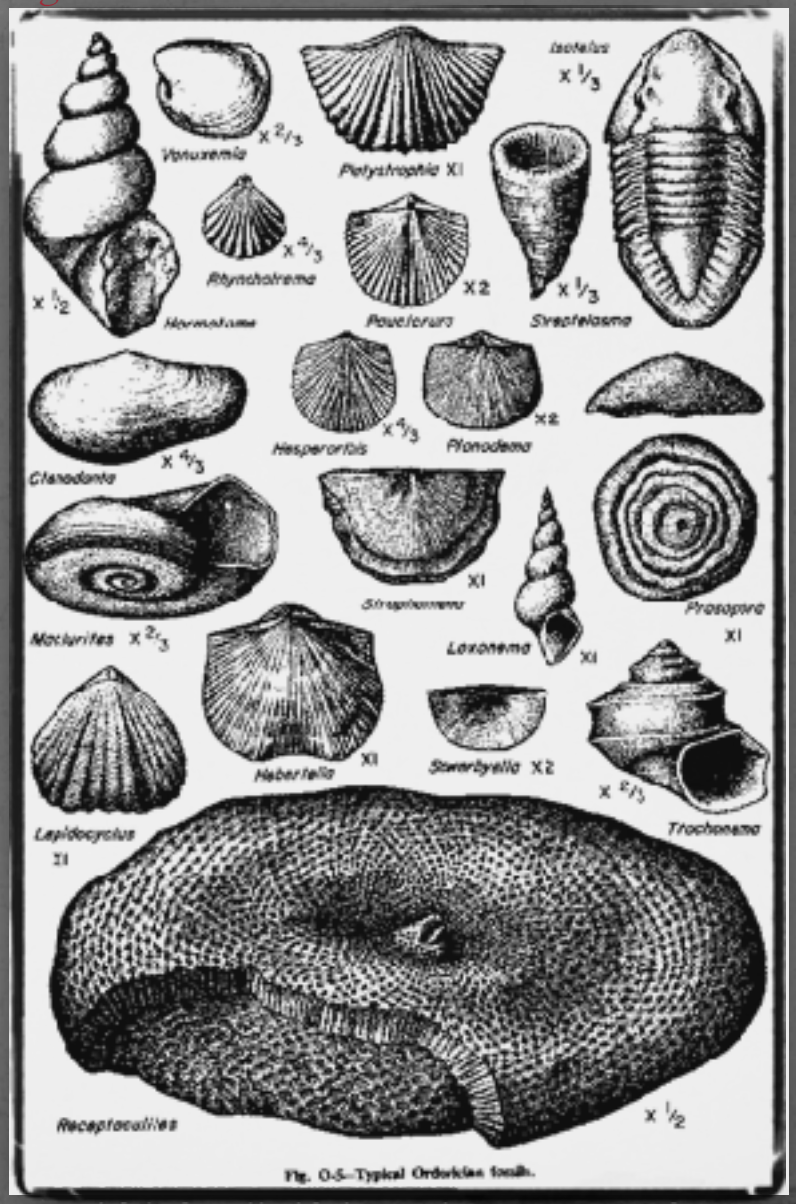

Fossil Lab

Click on your favorite fossil to ENTER

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Click on any station

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Station 1

Fossils are evidence of living things from the past.

1. Is this Petrified Wood a fossil? Yes / No

2. Petrified Wood is made of _____ .
   Wood / Mineral
   (Choose one)

Click photo to enlarge

Sample 1

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Station 2

A **Mold** is a hollow opening left as a buried animal or plant decays.

A **Cast** is made of mineral that has filled in the mold. The cast has the identical shape of the original plant or animal.

3. Which sample is the mold? A or B

4. Which sample is the cast? A or B

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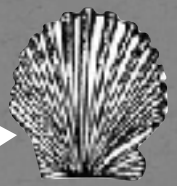
Next Station

Station 3

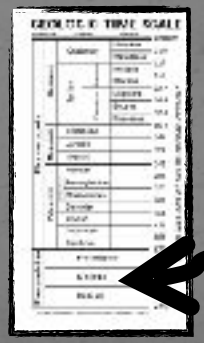
Index fossils are fossils of plants or animals that lived only at a certain time in the geologic past. By finding these in rock, we automatically know how old the rock is.

5. This fossil is probably _____ (give its name).

Click here to find a CLUE



6. It lived in the Silurian Period, therefore the rock it was found in was about _____ million years old.



click here for Geologic Time Scale

7. It lived in the _____ ERA.

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Station 4

This fossil replica was molded from an actual specimen.

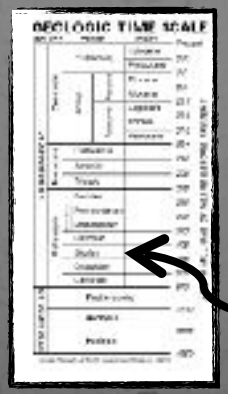
8. What is the name of this "fossil" specimen?

9. It lived during the _____ period.

(about 100 Million years ago)

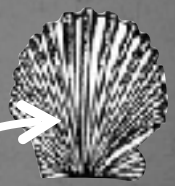
10. This is a _____ fossil.

(real/fake)



click here for Geologic Time Scale

Click here to find a CLUE



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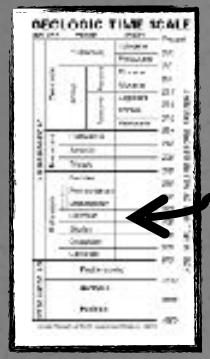
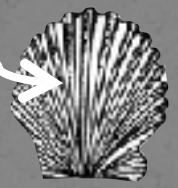
Station 5

Examine this fossil replica:



click here for Geologic Time Scale

Click here to find a CLUE



11. The name of this "fossil" is _____ _____.

12. It lived during the _____ and _____ periods.

13. It lived during the _____ ERA.

Station 6

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click here for Geologic Time Scale

Examine these "fossil" specimens carefully. They are similar but not exactly the same.

Click to enlarge

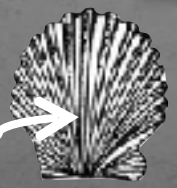
Click to enlarge

14. What are their names and to which period do they belong?

	Name	Period
sample 7	_____	_____
sample 8	_____	_____
sample 9	_____	_____

15. Which is the oldest ? _____

Click here to find a CLUE



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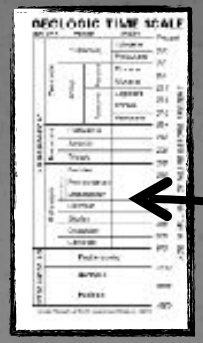
Station 7



click here for Geologic Time Scale

These two fossil samples each represent a **tooth** from an ancient horse. We see two different teeth from two different species of horse.

Click to enlarge

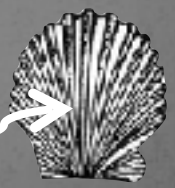
16. Sample 10 is from an ancient horse named _____.

17. Sample 11 is from an ancient horse named _____.

18. A) Which animal lived more recently? _____

    B) These animals lived _____.
    (on land / in the ocean)

Click here to find a CLUE



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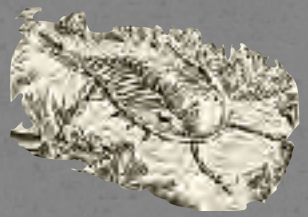
Station 8

Examine this actual **Trilobite** fossil under the microscope (enlarge the picture). Trilobites are extinct animals that lived in shallow seas as long as 600 million years ago!!



Click to enlarge

19. It is very easy /difficult to determine exactly which species of trilobite we have.

20. The closest one to our sample is _____.

Pick one: Calymene / Isotelus / Olenoides (see clue)

Click here to find a CLUE

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Next Station

Station g

Examine this fossil replica.

21. This sample represents the fossilized tooth of a _____. (common name)

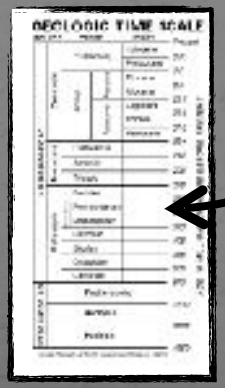
22. Its name is _____. (scientific name)

23. It is from the _____ ERA.

24. It is a _____.

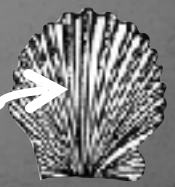
    pick one: a real shark's tooth
    a real fossil of a shark's tooth
    a fake fossil of a shark tooth
    a real tooth from a fake shark

Click to enlarge



click here for Geologic Time Scale

Click here to find a CLUE



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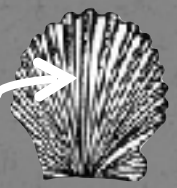
Station 10

This is a Fossil Replica of an ancient Cephalopod.

25. What is the name of this "fossil" specimen?

Hint: look very closely, there is another one that looks a lot like it.

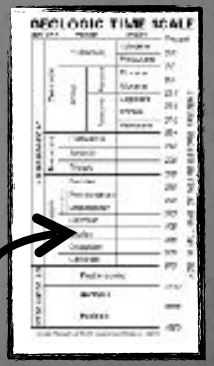
Click here to find a CLUE



Click to enlarge

26. It lived during the (A) _____ period which was (B) _____ to _____ million years ago.

click here for Geologic Time Scale



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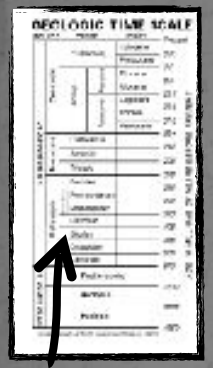
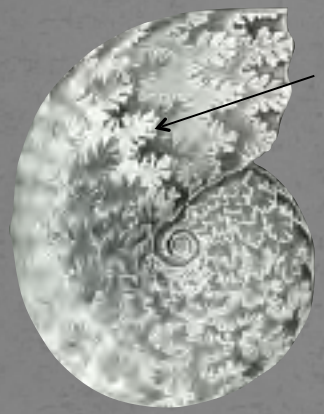
Station 11

This sample represents the fossilized remains of a small sea creature known as an **Ammonite**. Ammonites had jagged lines on their shells called sutures.



click here for Geologic Time Scale



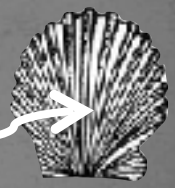
sutures

Click to enlarge

27. Can you see any suture lines on this sample? _____

28. The name of this Ammonite is _____ _____.

Click here to find a CLUE



29. It lived about 350 million years ago in the _____ Period.

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Station 12

This is **Venericardia robustus**. All plants and animals are given two names; a Genus name (with a capitol letter) and a species name (with a small letter).

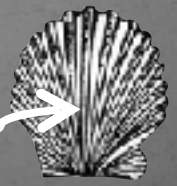
30. What is the Genus name of this "fossil"?

31. What is its species name?

32. The animal represented by this fossil is a Pelecypod. Pelecypods are _____?

Choose one: clams / snails / sea urchins

Click here to find a CLUE



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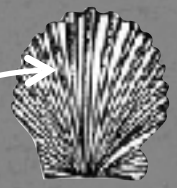
Station 13

These two samples are both **Brachiopods**; animals that lived in shallow seas attached to the sea bottom.

Click here to find a CLUE



33. Sample 17 is named _____ _____.
    It is from the Cretaceous period.

34. Sample 18 is named _____ _____.
    It is from the Silurian period.

35. Which is the oldest?

click here for Geologic Time Scale

Station 14

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Next Station

These might be fossils of a sea animal called a **Belemnoid**. The v-shaped groove is a mold (see station 2) and the material filling the groove is the cast.

Sample 19

Sample 20

36. Are these fossils real (made of rock) or fake (made of plaster or plastic)?

37. What has filled the v-shaped groove in sample 20?

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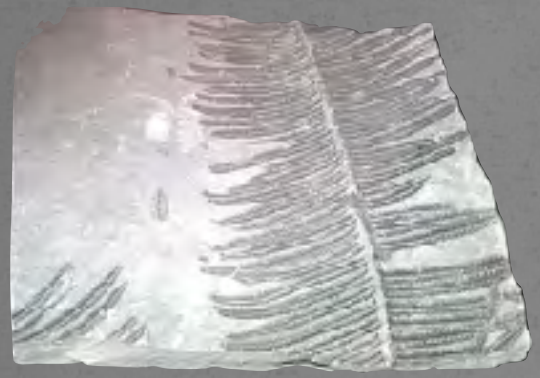
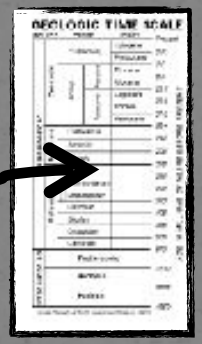
Station 15

This is a plaster model of some **plant fossils** you could have found in 300 million year old rock.



click here for Geologic Time Scale



38. Match the fossil with its scientific name.

fossil A _____ fossil B _____

fossil C _____ fossil D _____

39. Which fossil shows the scales of an ancient tree?

40. These fossils are from the _____ ERA.

Click here to find a CLUE

Station 16

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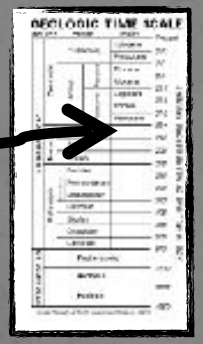
Next Station

Both of these fossils are **Trilobites** that have curled up into a ball.

click here for Geologic Time Scale



Click photos to enlarge

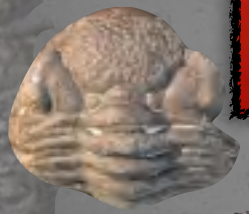
41. Sample 22 is named _____ _____.

42. Sample 23 is named _____ _____.

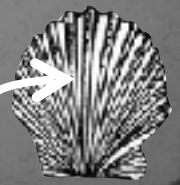
43. Which "fossil" is the oldest?

44. Both of these are from the _____ ERA.

45. What is different about them that allowed you to tell them apart?



Click here to find a CLUE



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Station 17

This plaster cast is a replica of several **marine fossils** (lived in the sea).

46. Fossil A is a _____ .

trilobite / cephalopod

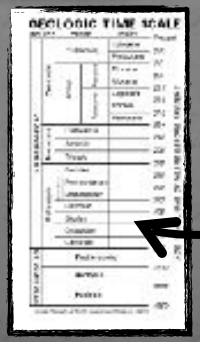
47. Fossil B is a _____ .

trilobite / cephalopod

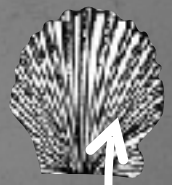
48. Fossil C is a _____.

trilobite / cephalopod

49. Which of these "fossils" is the oldest?



click here for Geologic Time Scale



Click here to find a CLUE

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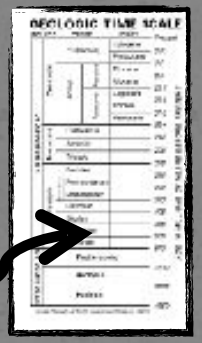
Station 18

These fossil replicas are of sea animals called **Echinoderms**.

Click images to enlarge

Click images to enlarge



click here for Geologic Time Scale

50. Sample 25 is named _____. It is commonly called a "sea lilly".

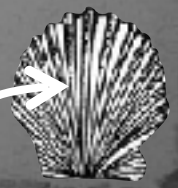
51. Sample 26 is named _____.

52. Sample 27 is named _____ _____. It is commonly called a "sea urchin".

53. Did all three of these animals live in the same ERA?

54. Which one is this a picture of?

Click here to find a CLUE



Station 19

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Fossils of sea creatures such as ancient fish, clams, and snails are most commonly preserved in **Sedimentary Rock**.

Click photo to enlarge

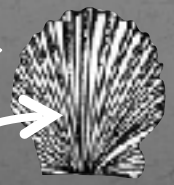
55. a) This is a fossil replica of a 40 million year old _____.

b) It was probably found in layers of _____ rock.

pick one: shale / granite / basalt

56. This fossil is from the _____ ERA.

Click here to find a CLUE



click here for Geologic Time Scale

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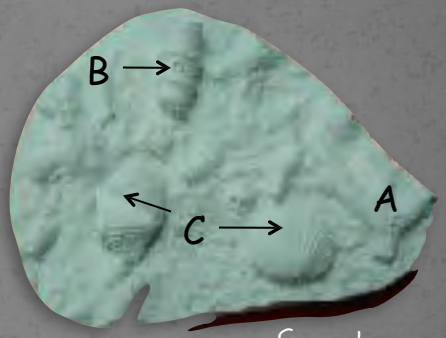
This plaster model shows fossilized plants and animals that lived 450 - 600 million years ago!



Sample 29

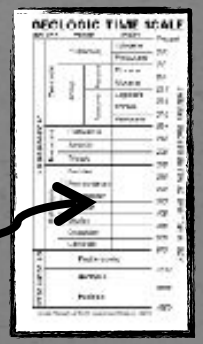
57. Fossil A is named _____.

58. Fossil B is named _____.

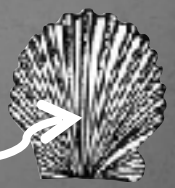
59. Fossil C is named _____.

60. In which two periods did these animals live?

click here for Geologic Time Scale



Click here to find a CLUE



Station 21

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Next Station

Examine this fossil replica.

click here for Geologic Time Scale

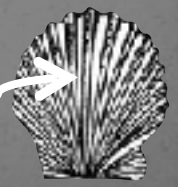
click to enlarge

61. The name of this fossil is _____ _____.

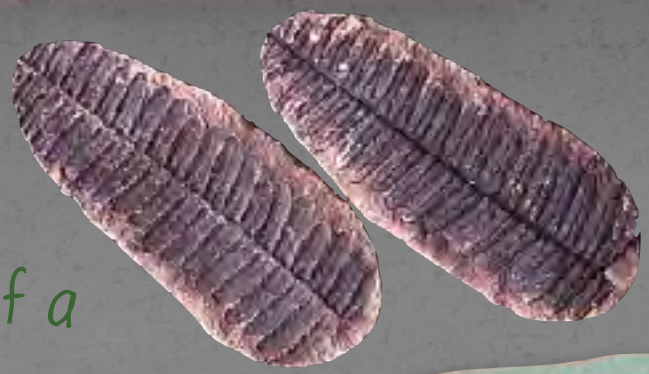
62. In which period did it live?

63. In which ERA did it live?

Click here to find a CLUE



Station 22



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This is a plaster replica of a fossil found in 300 million year old rock!

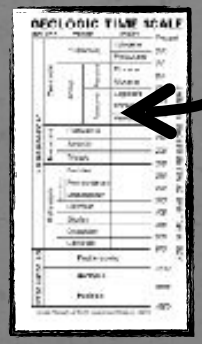
Sample 31

click to enlarge

64. The name of this "fossil" is _____.

65. a) It was a _____ plant / animal

b) It lived during the _____ period.



click here for Geologic Time Scale

Click here to find a CLUE

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Fossils are evidence of living things from the past. This animal lived up to 65 million years ago.

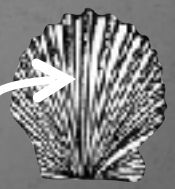
66. This "fossil is named _____ _____.

67. It is a _____ cephalopod / gastropod / pelecypod

68. It lived during the _____ period.

click here for Geologic Time Scale

Click here to find a CLUE



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Next Station

This plaster cast shows 3 different marine animals that lived 600 million years ago but some species still exist today.

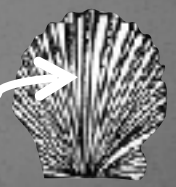
click image to enlarge

69. Specimen A is an ancient Gastropod (snail). It lived 65 million years ago in the _____ period.

70. Specimen C belongs to a group known as Anthozoa. This one is a horn coral and lived _____ million years ago.

click here for Geologic Time Scale

Click here to find a CLUE



Station 25 "The Ways Fossils Form"

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Next Station

Click on each picture below to watch a short animated video demonstrating the formation of fossils. Then answer the questions on your lab sheet.

Unaltered Hard Parts

Trace Fossils

Replacement

Permineralization

Molds and Casts

Carbonization

Station 26

Return to Index
Next Station

Nothronychus vs Zunityrannus

Two dinosaurs with common ancestors that evolved along very different paths. Watch the video and answer the questions on your lab sheet.

Nothronychus

Station 27

Return to Index

Next Station

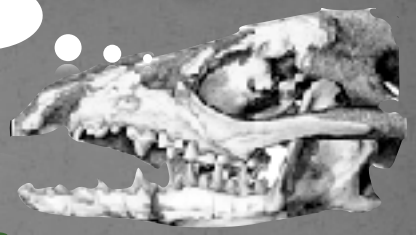
Watch this video as new evidence shows even the largest dinosaurs were not always safe from attack! Answer the question on your answer sheet.

Mapusaurus Gang vs Argentinosaurus

Return to Index

Station 28

This is the last station!!!



Prehistoric "birds" with a poisonous bite?

Watch the video and check your answer sheet for questions.

Sinornithosaurus: A Poisonous Bite ... deadly day or night

RETURN TO STATION 1

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Sample 1

RETURN TO STATION 2

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RETURN TO STATION 3

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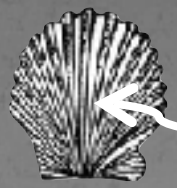
RETURN TO STATION 4

Return to Index

Click here to find a CLUE

RETURN TO STATION 5



Click here to find a CLUE

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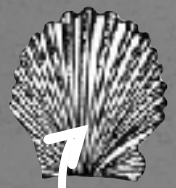
RETURN TO STATION 6

Return to Index



Click here to find a CLUE

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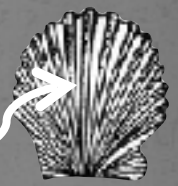
RETURN TO STATION 7

Click here to find a CLUE



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Click here to find a CLUE

RETURN TO STATION 9

RETURN TO STATION 10

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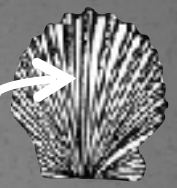
Click here to find a CLUE



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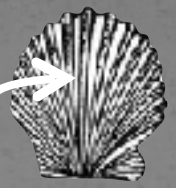
Click here to find a CLUE



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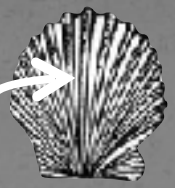
Click here to find a CLUE



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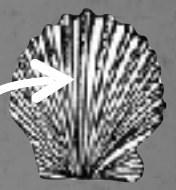
Sample 17

Sample 18

Click here to find a CLUE



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Sample 19

Sample 20

RETURN TO STATION 15

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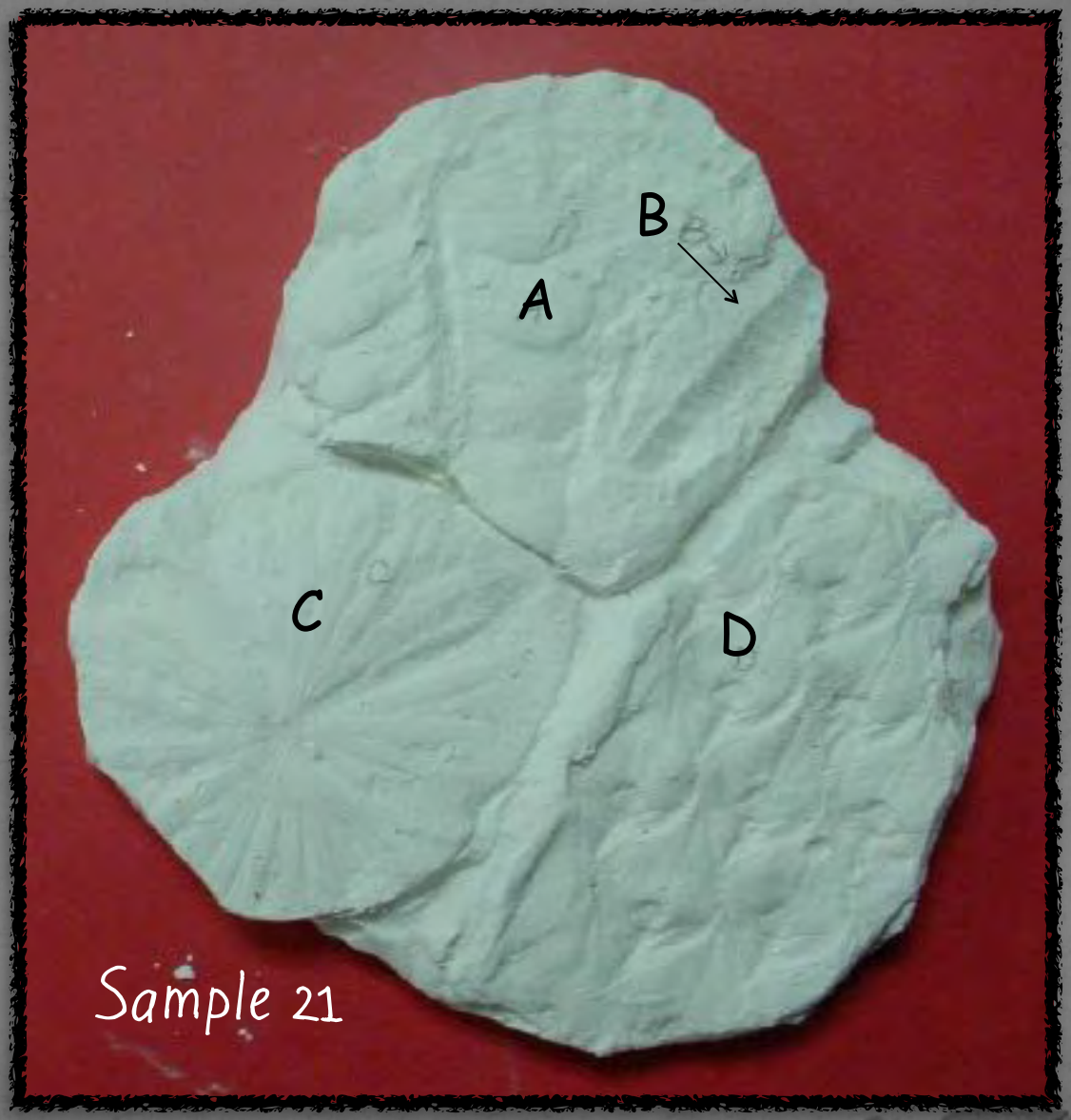
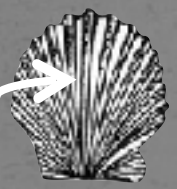


Click here to find a CLUE



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Sample 22

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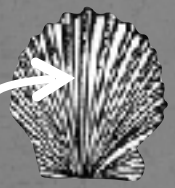

Sample 23

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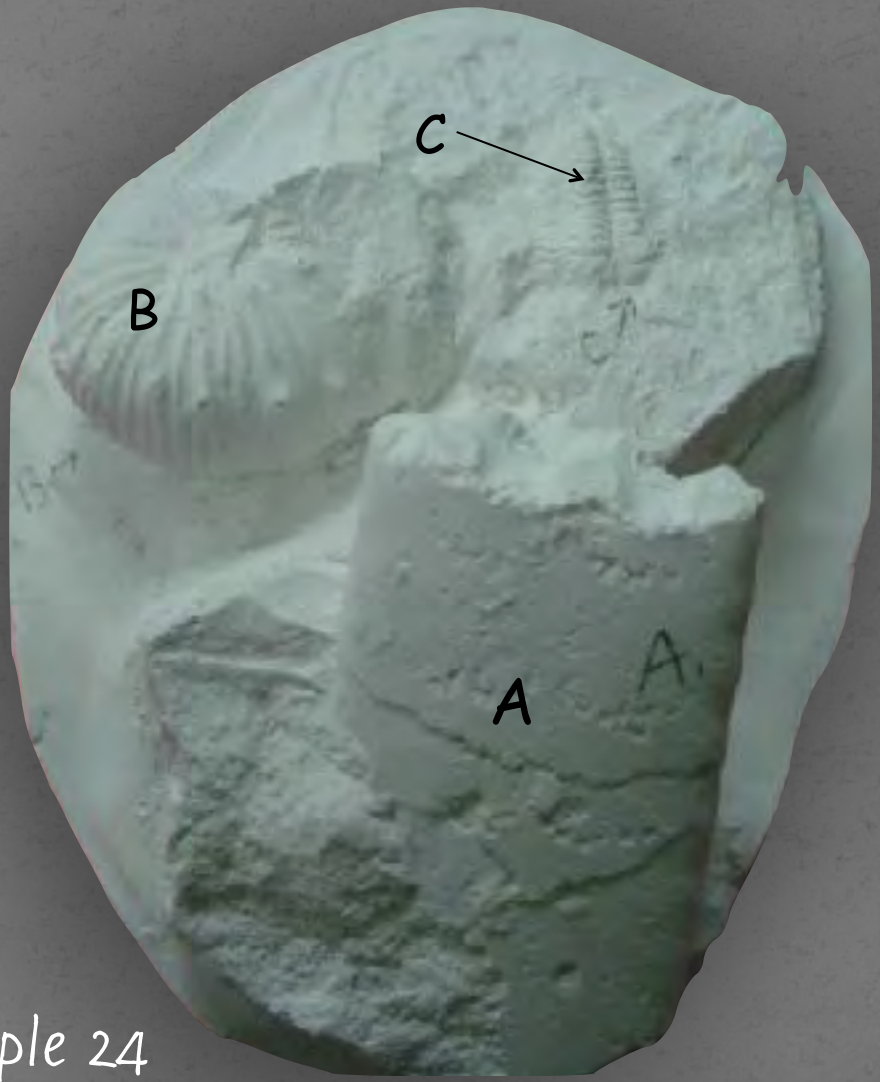

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Sample 24

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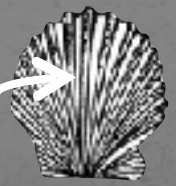
Click here to find a CLUE



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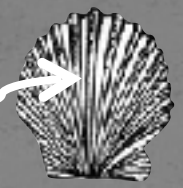

Sample 28

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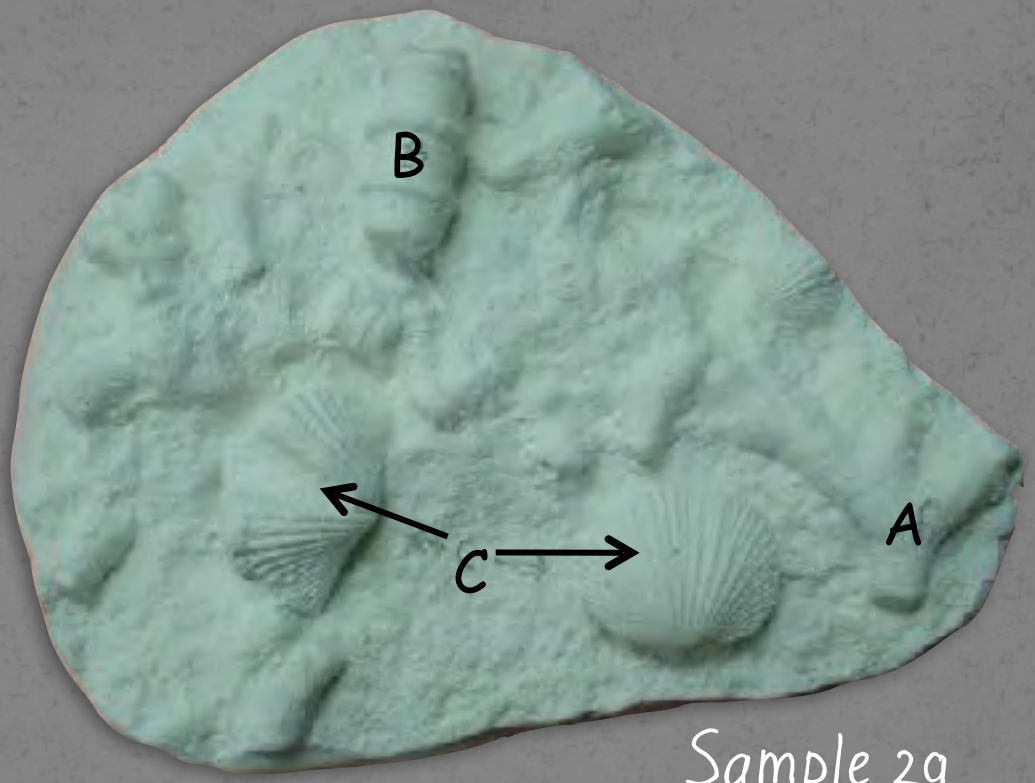

Sample 29

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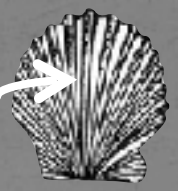

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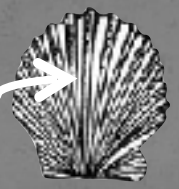

Sample 31

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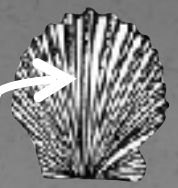

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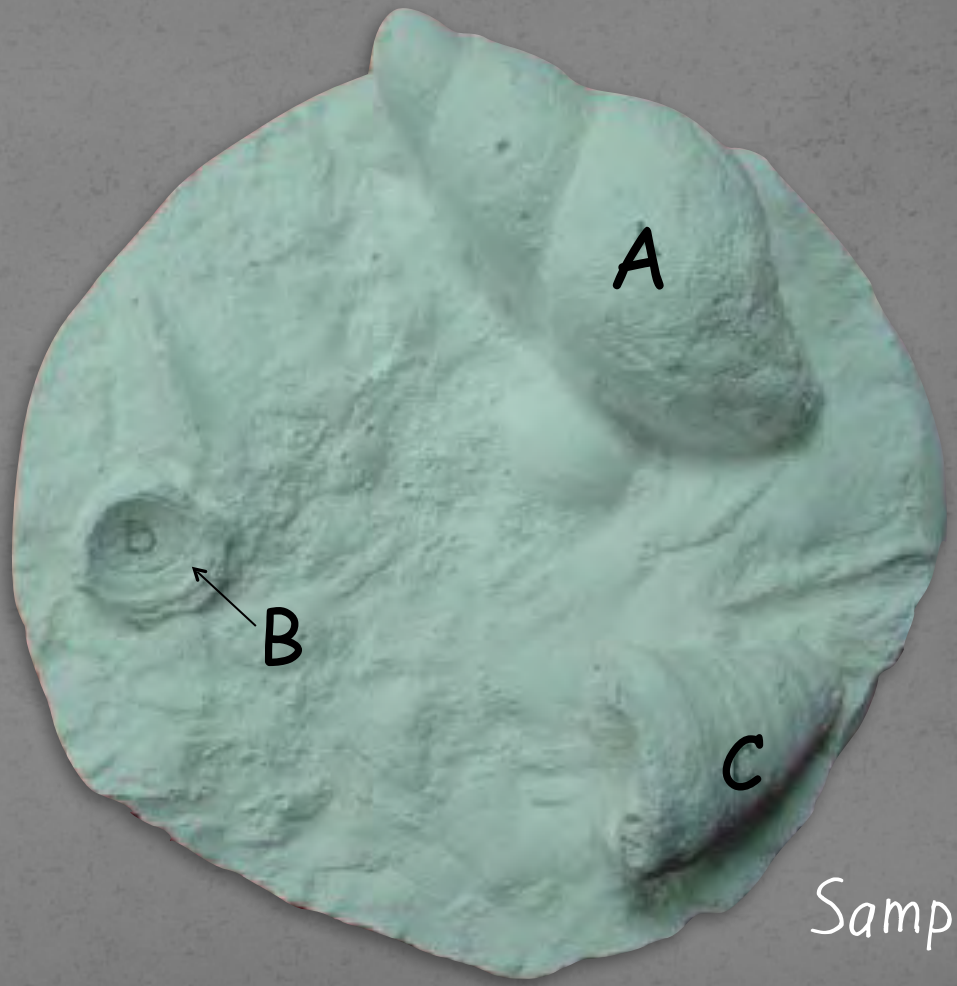

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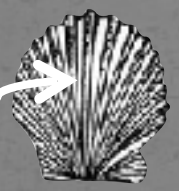


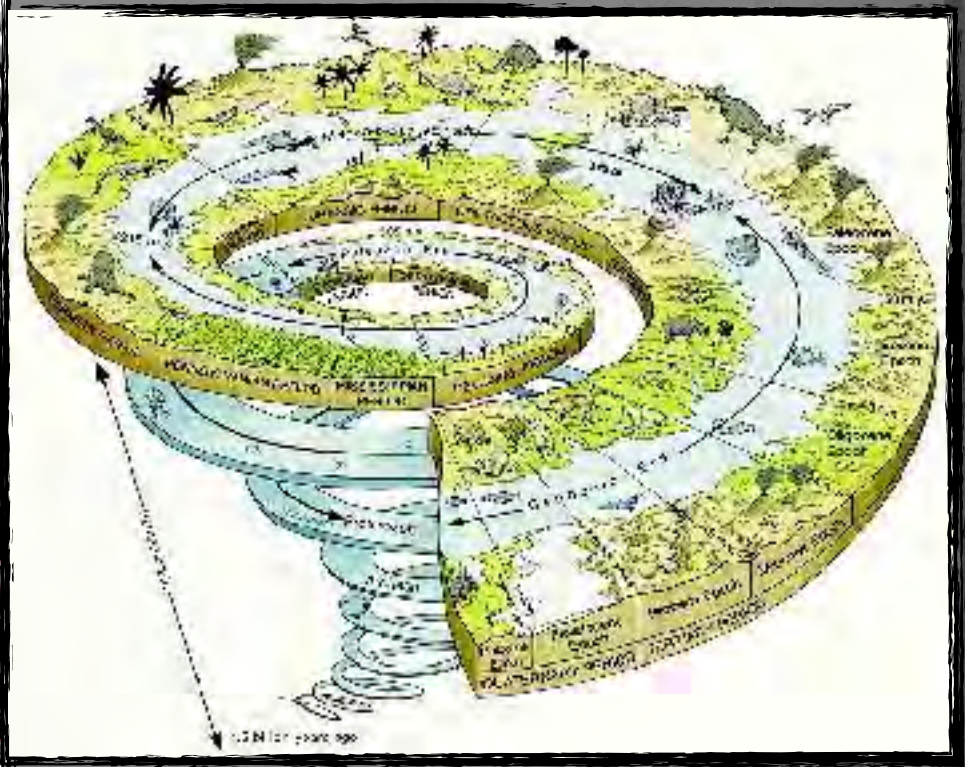
Sample 33

GEOLOGIC TIME SCALE

EON	ERA	PERIOD		EPOCH	AGE IN MILLIONS OF YEARS BEFORE PRESENT
					Present
Phanerozoic	Cenozoic	Quaternary		Holocene	0.01
				Pleistocene	1.6
		Tertiary	Neogene	Pliocene	5.3
				Miocene	23.7
			Paleogene	Oligocene	36.6
				Eocene	57.8
				Paleocene	66.4
	Mesozoic	Cretaceous			144
		Jurassic			208
		Triassic			245
	Paleozoic	Permian			286
		Carboniferous	Pennsylvanian		320
			Mississippian		360
		Devonian			408
		Silurian			438
		Ordovician			505
		Cambrian			570
Precambrian	Proterozoic				2500
	Archean				3800
	Hadean				4550

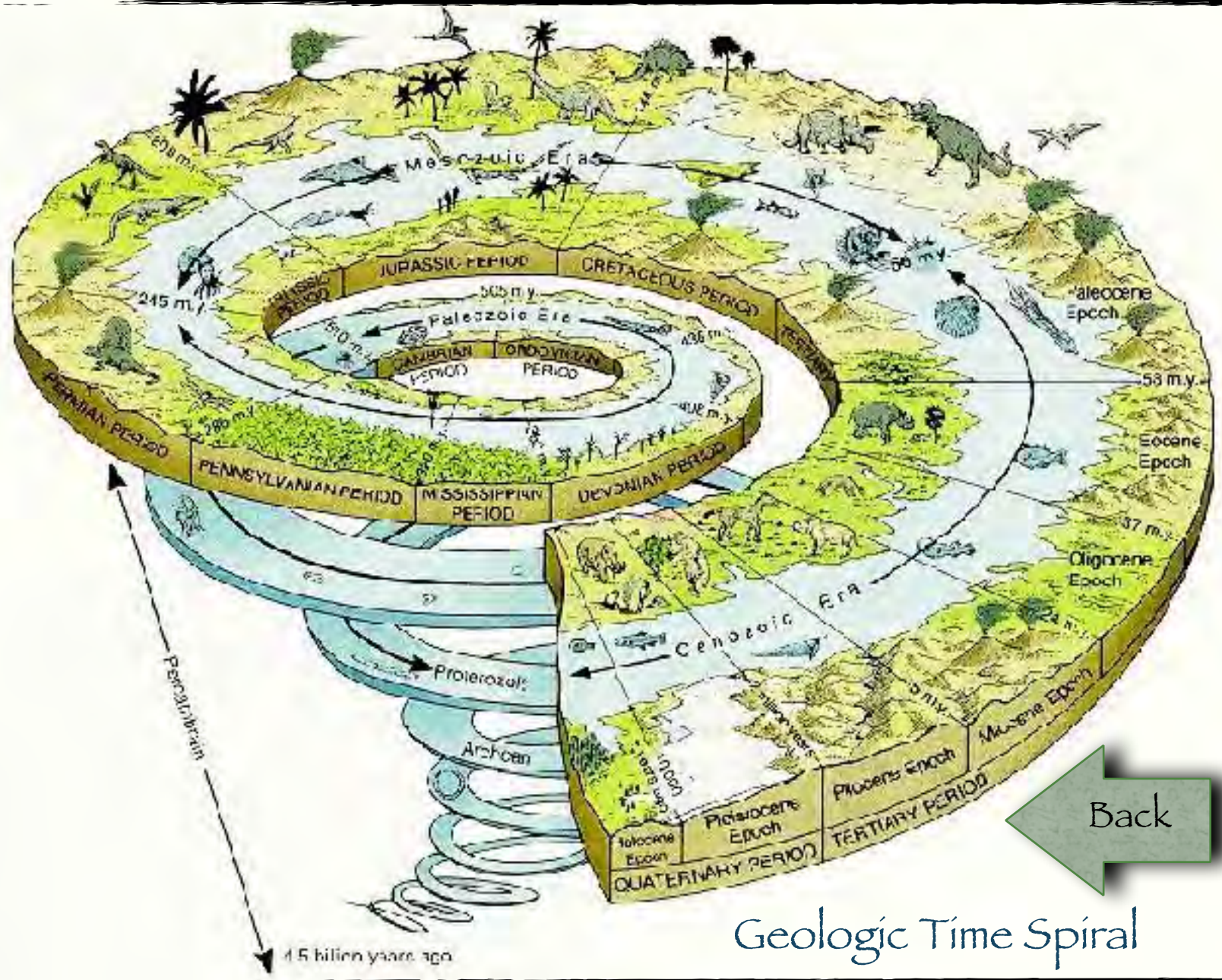
(From Decade of North American Geology, 1983)

Back to Station 3



Geologic Time Spiral

Click on picture to enlarge



Back

Geologic Time Spiral

GEOLOGIC TIME SCALE

EON	ERA	PERIOD		EPOCH	AGE IN MILLIONS OF YEARS BEFORE PRESENT
					Present
Phanerozoic	Cenozoic	Quaternary		Holocene	0.01
				Pleistocene	1.6
		Tertiary	Neogene	Pliocene	5.3
				Miocene	23.7
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				Eocene	57.8
				Paleocene	66.4
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		Jurassic			208
		Triassic			245
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		Carboniferous	Pennsylvanian		320
			Mississippian		360
		Devonian			408
		Silurian			438
		Ordovician			505
		Cambrian			570
Precambrian	Proterozoic				2500
	Archean				3800
	Hadean				4550

(From Decade of North American Geology, 1983)

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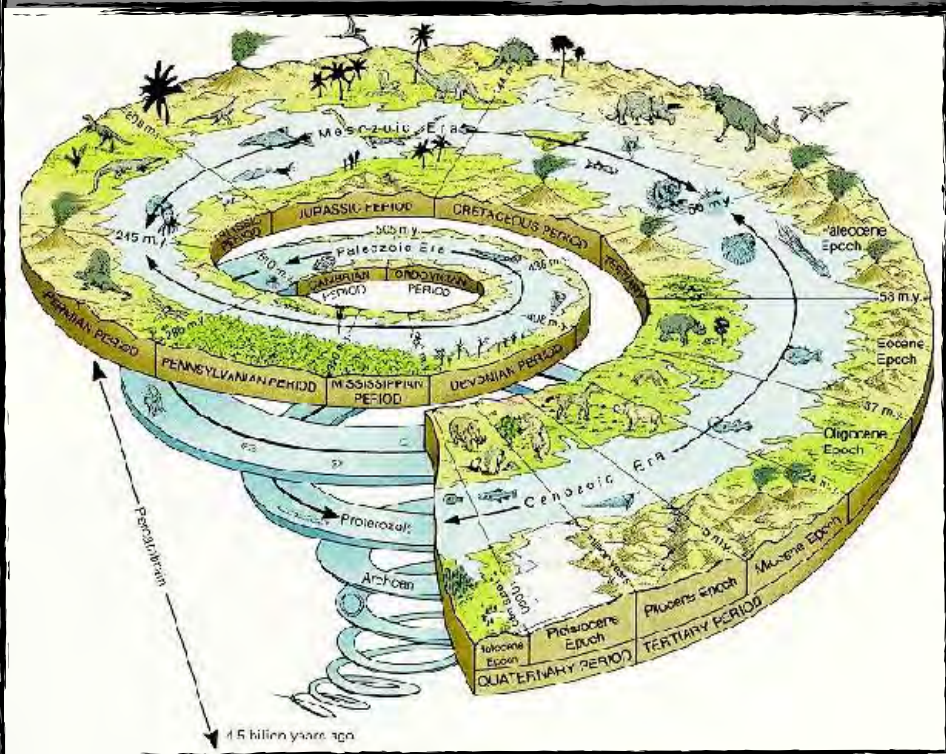
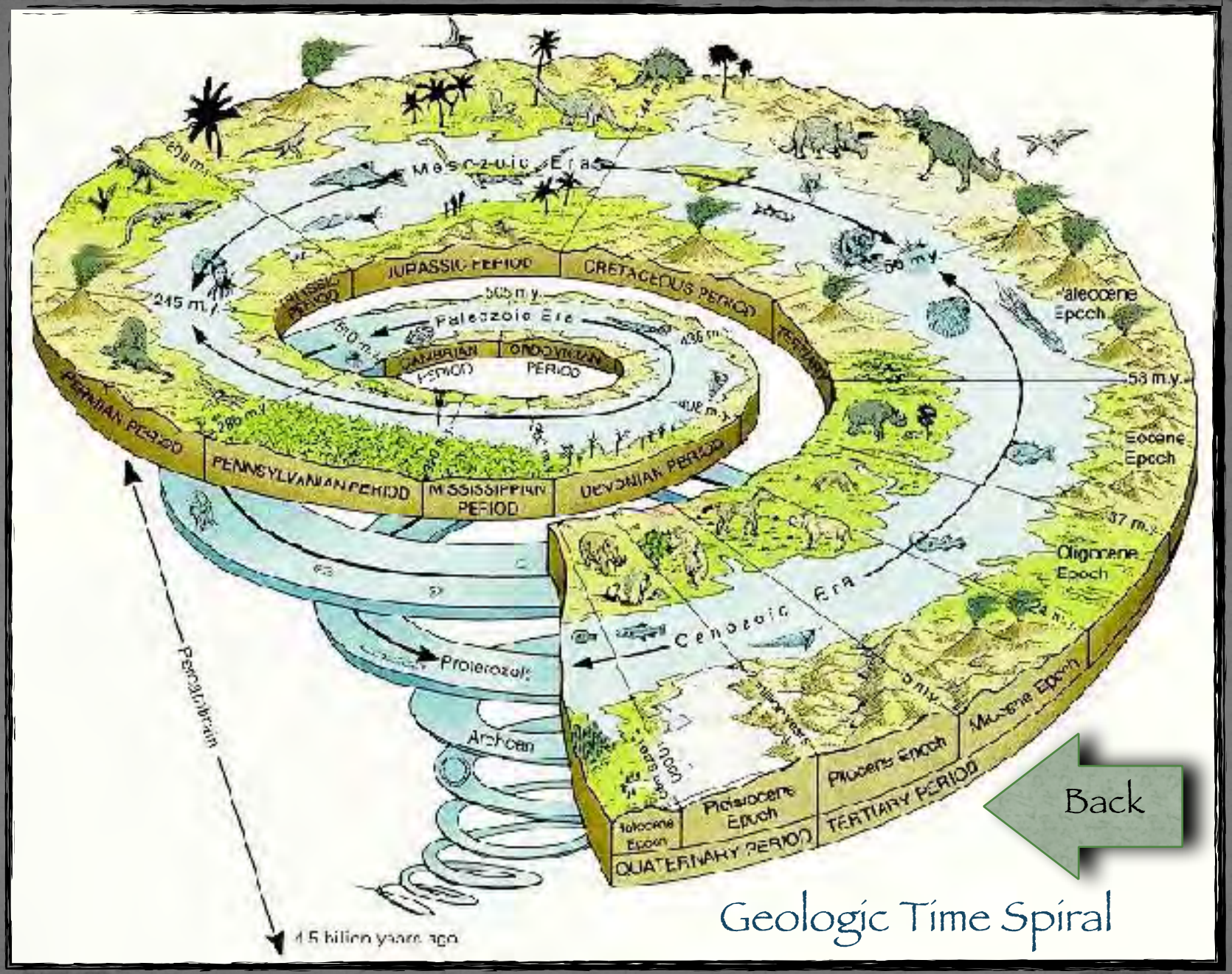


Geologic Time Spiral

Click on picture to enlarge



Back

Geologic Time Spiral

GEOLOGIC TIME SCALE

EON	ERA	PERIOD		EPOCH	AGE IN MILLIONS OF YEARS BEFORE PRESENT
					Present
Phanerozoic	Cenozoic	Quaternary		Holocene	0.01
				Pleistocene	1.6
		Tertiary	Neogene	Pliocene	5.3
				Miocene	23.7
			Paleogene	Oligocene	36.6
				Eocene	57.8
				Paleocene	66.4
	Mesozoic	Cretaceous			144
		Jurassic			208
		Triassic			245
	Paleozoic	Permian			286
		Pennsylvanian			320
		Mississippian			360
		Devonian			408
		Silurian			438
		Ordovician			505
		Cambrian			570
Precambrian	Proterozoic				2500
	Archean				3800
	Hadean				4550

(From Decade of North American Geology, 1983)

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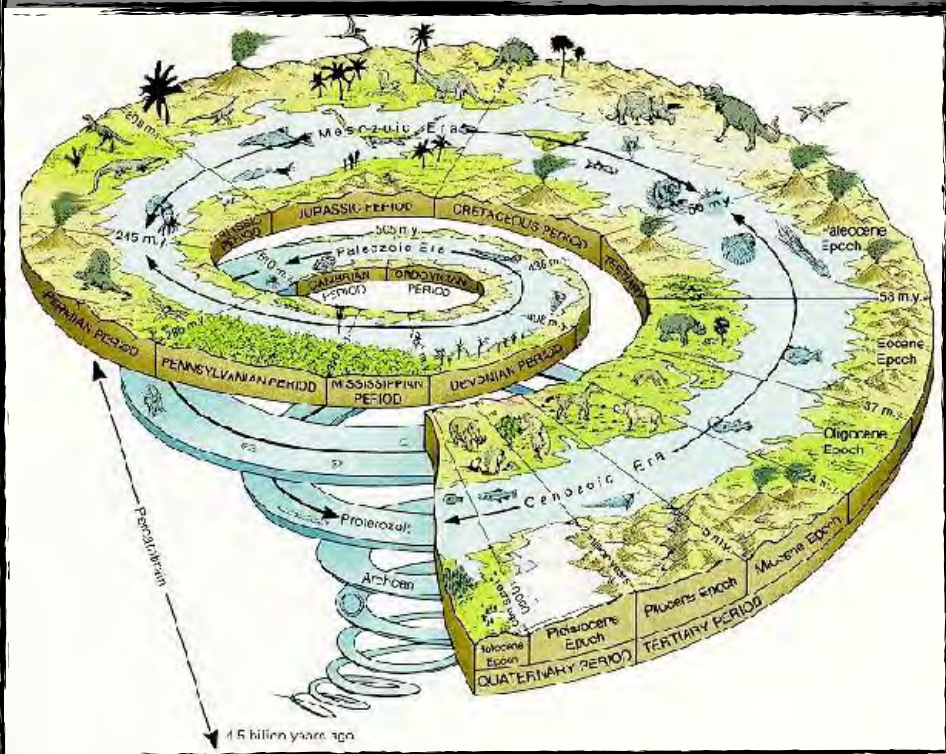
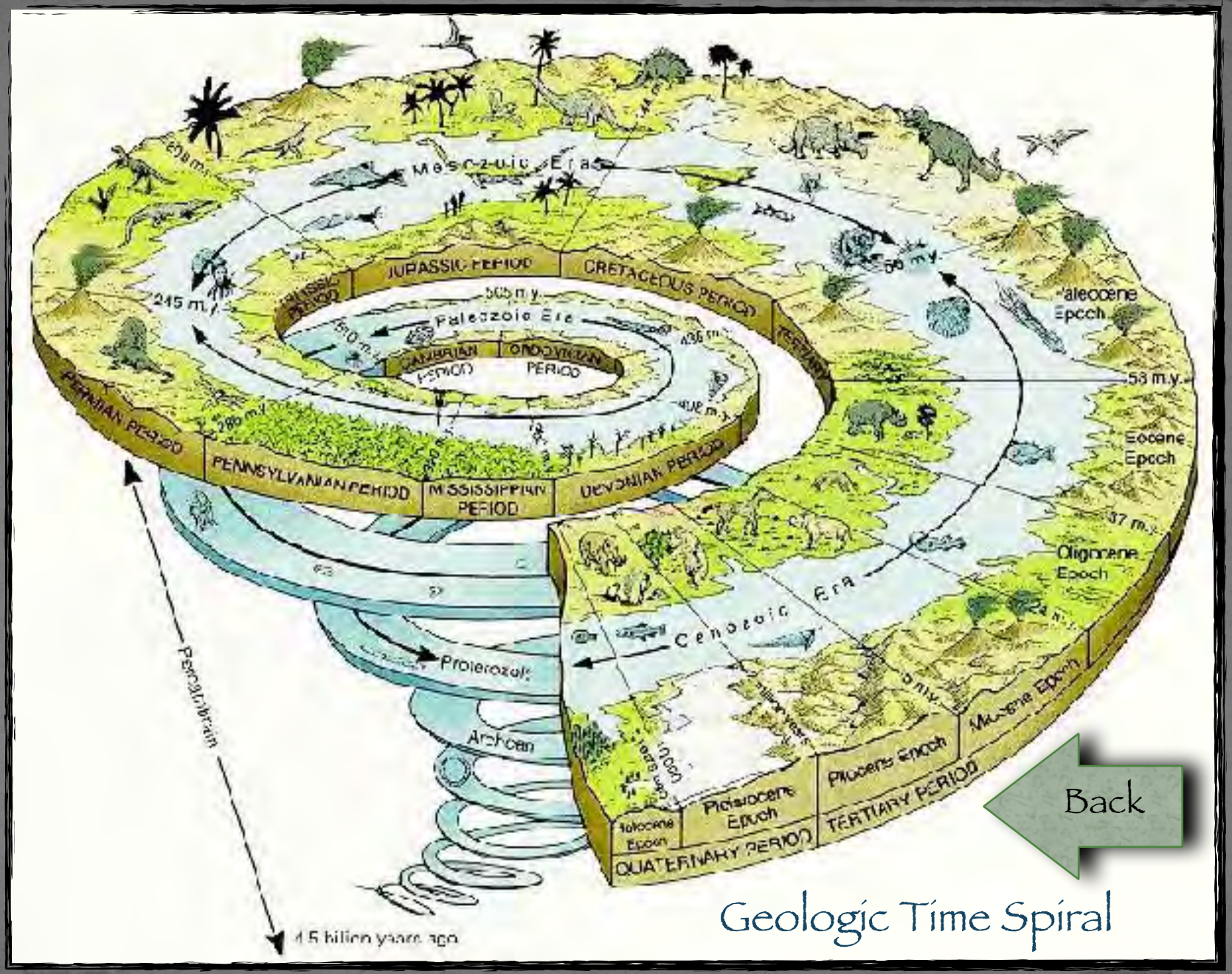


Geologic Time Spiral

Click on picture to enlarge



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Geologic Time Spiral

GEOLOGIC TIME SCALE

EON	ERA	PERIOD		EPOCH	AGE IN MILLIONS OF YEARS BEFORE PRESENT
					Present
Phanerozoic	Cenozoic	Quaternary		Holocene	0.01
				Pleistocene	1.6
		Tertiary	Neogene	Pliocene	5.3
				Miocene	23.7
			Paleogene	Oligocene	36.6
				Eocene	57.8
				Paleocene	66.4
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		Jurassic			208
		Triassic			245
	Paleozoic	Permian			286
		Carboniferous	Pennsylvanian		320
			Mississippian		360
		Devonian			408
		Silurian			438
		Ordovician			505
		Cambrian			570
Precambrian	Proterozoic				2500
	Archean				3800
	Hadean				4550

(From Decade of North American Geology, 1983)

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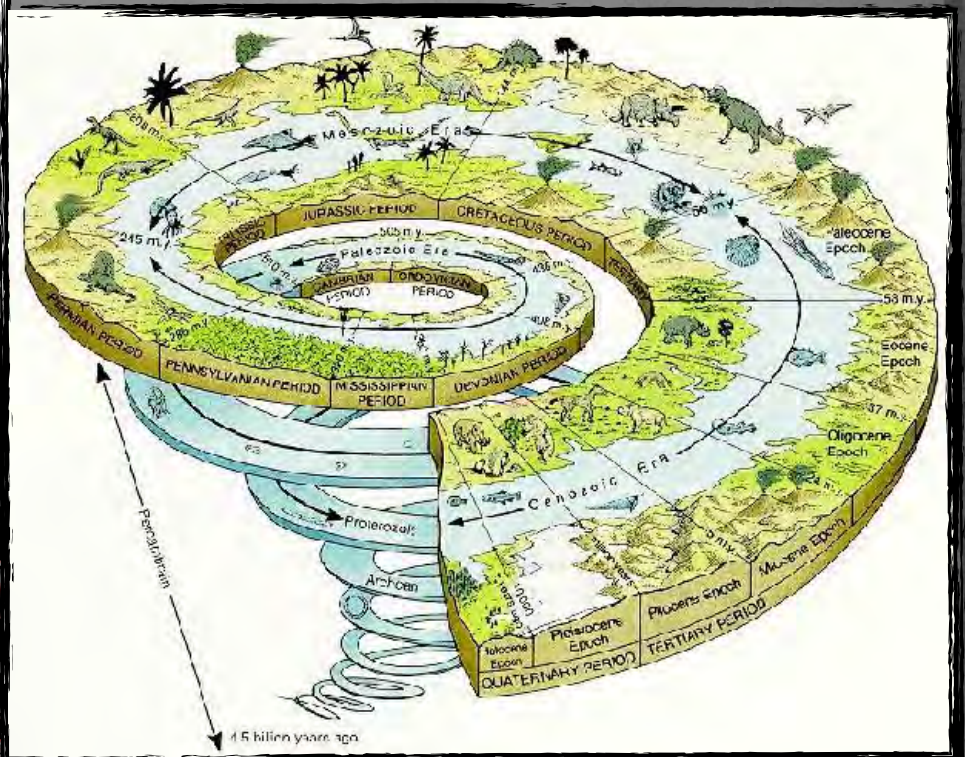
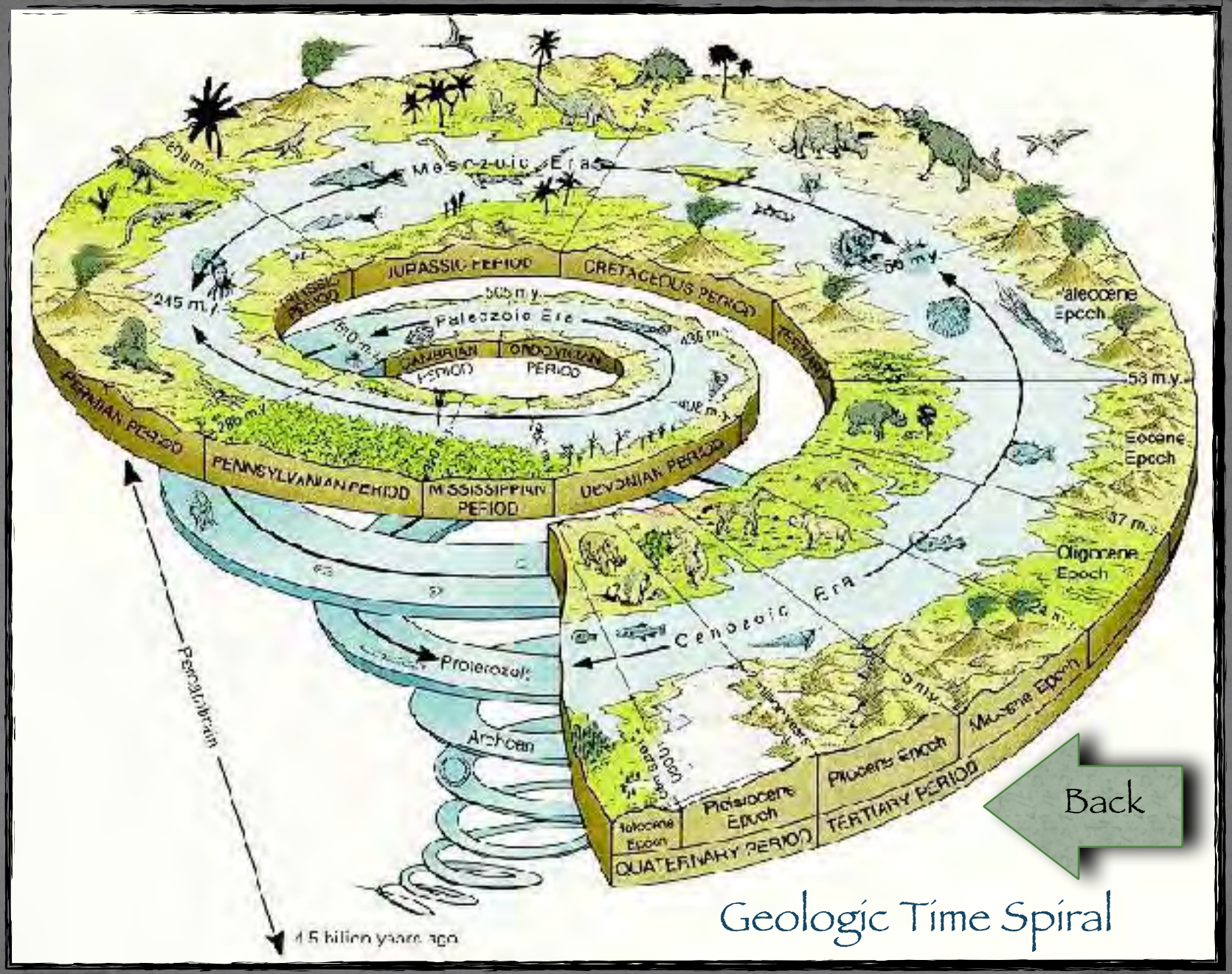


Geologic Time Spiral

Click on picture to enlarge



Back

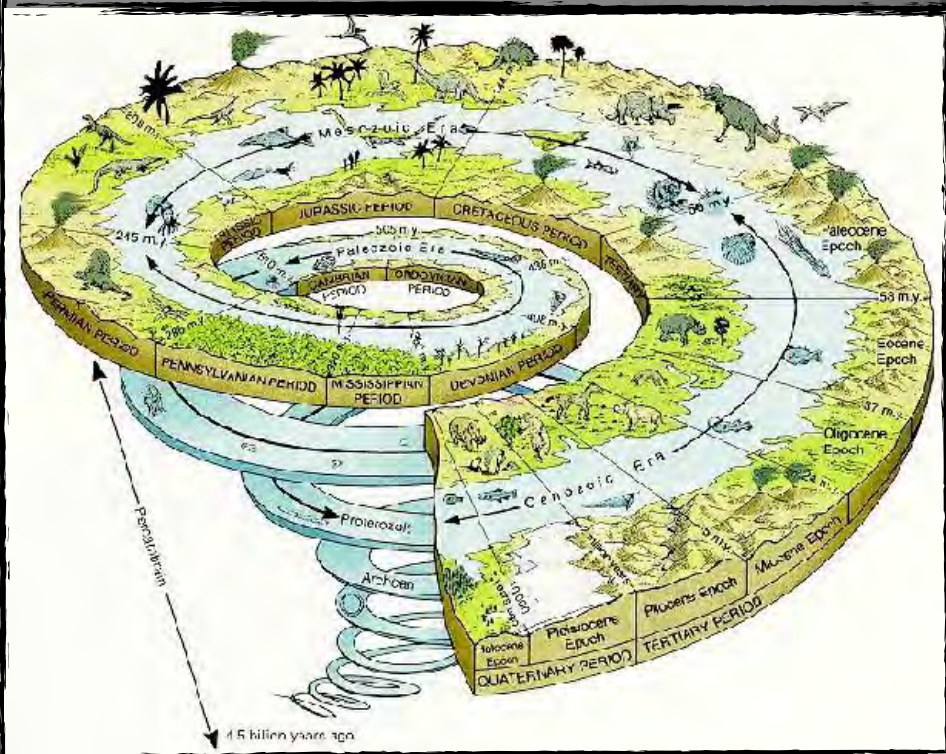
Geologic Time Spiral

GEOLOGIC TIME SCALE

EON	ERA	PERIOD		EPOCH	AGE IN MILLIONS OF YEARS BEFORE PRESENT
					Present
Phanerozoic	Cenozoic	Quaternary		Holocene	0.01
				Pleistocene	1.6
		Tertiary	Neogene	Pliocene	5.3
				Miocene	23.7
			Paleogene	Oligocene	36.6
				Eocene	57.8
				Paleocene	66.4
	Mesozoic	Cretaceous			144
		Jurassic			208
		Triassic			245
	Paleozoic	Permian			286
		Carboniferous	Pennsylvanian		320
			Mississippian		360
		Devonian			408
		Silurian			438
		Ordovician			505
		Cambrian			570
Precambrian	Proterozoic				2500
	Archean				3800
	Hadean				4550

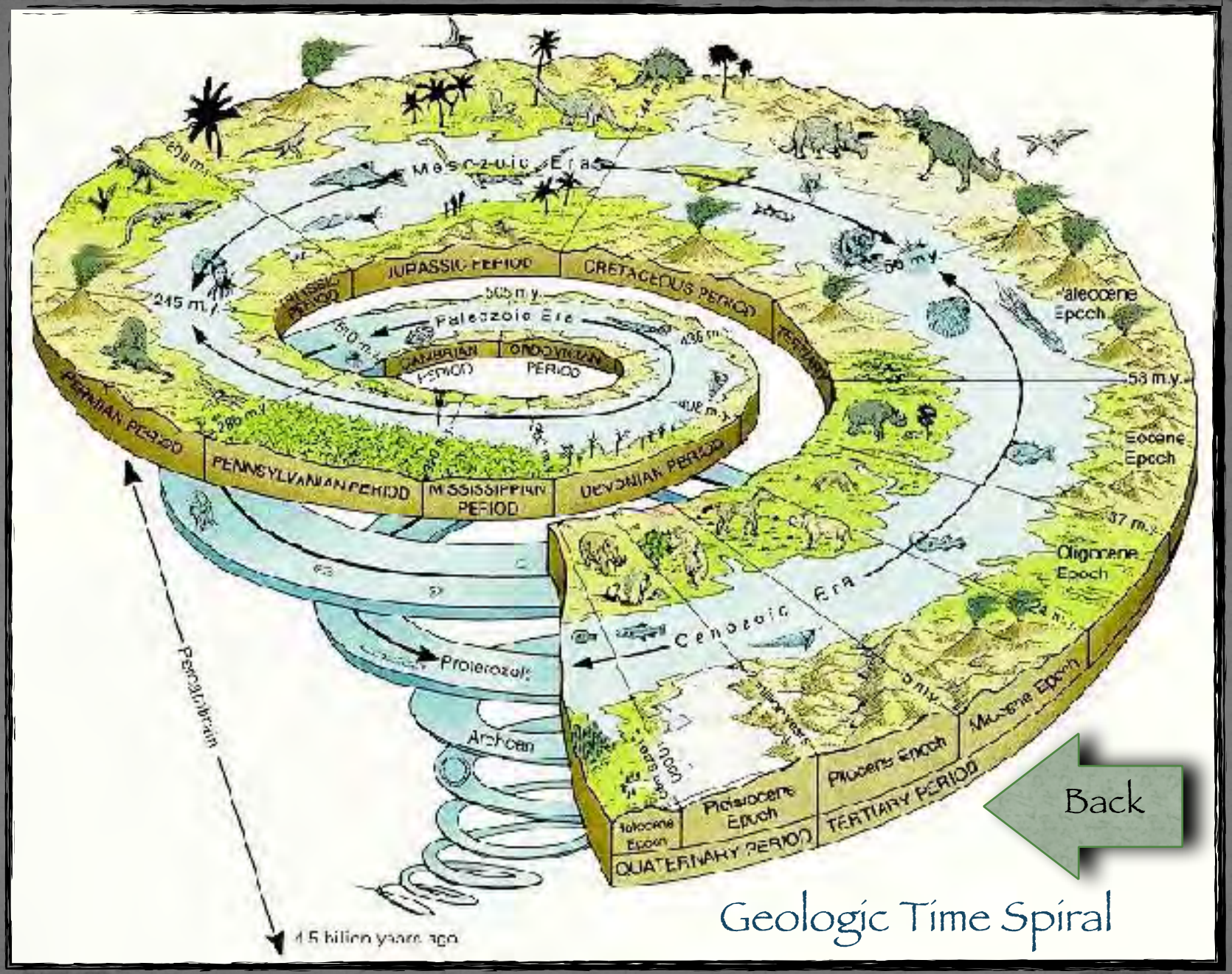
(From Decade of North American Geology, 1983)

Back to Station 7



Geologic Time Spiral

Click on picture to enlarge



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Geologic Time Spiral

GEOLOGIC TIME SCALE

EON	ERA	PERIOD		EPOCH	AGE IN MILLIONS OF YEARS BEFORE PRESENT
					Present
Phanerozoic	Cenozoic	Quaternary		Holocene	0.01
				Pleistocene	1.6
		Tertiary	Neogene	Pliocene	5.3
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		Cambrian			570
Precambrian	Proterozoic				2500
	Archean				3800
	Hadean				4550

(From Decade of North American Geology, 1983)

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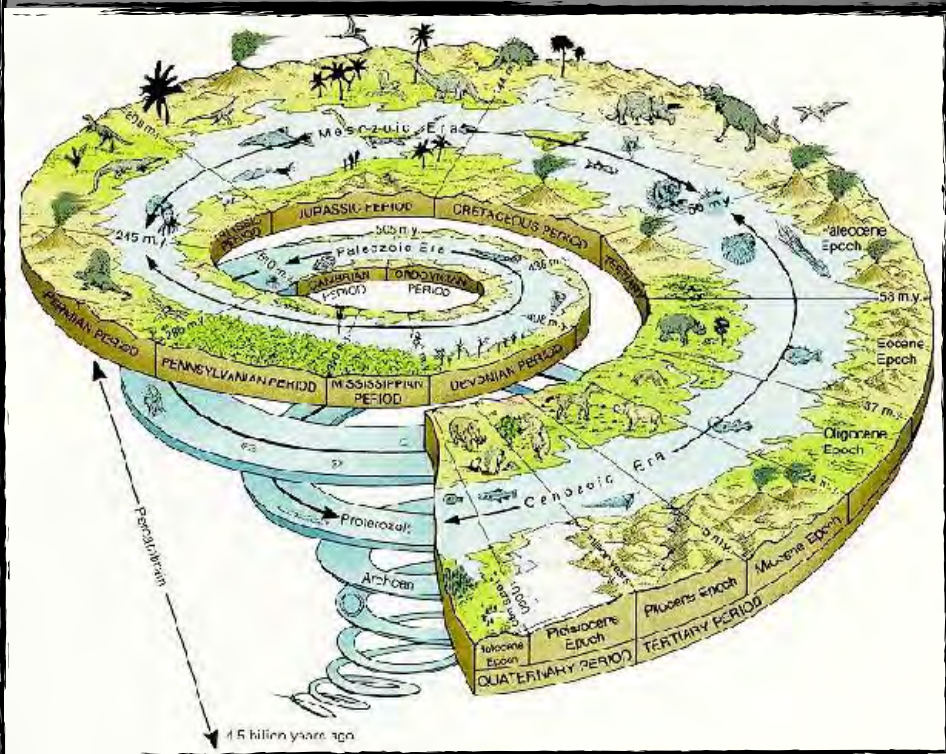
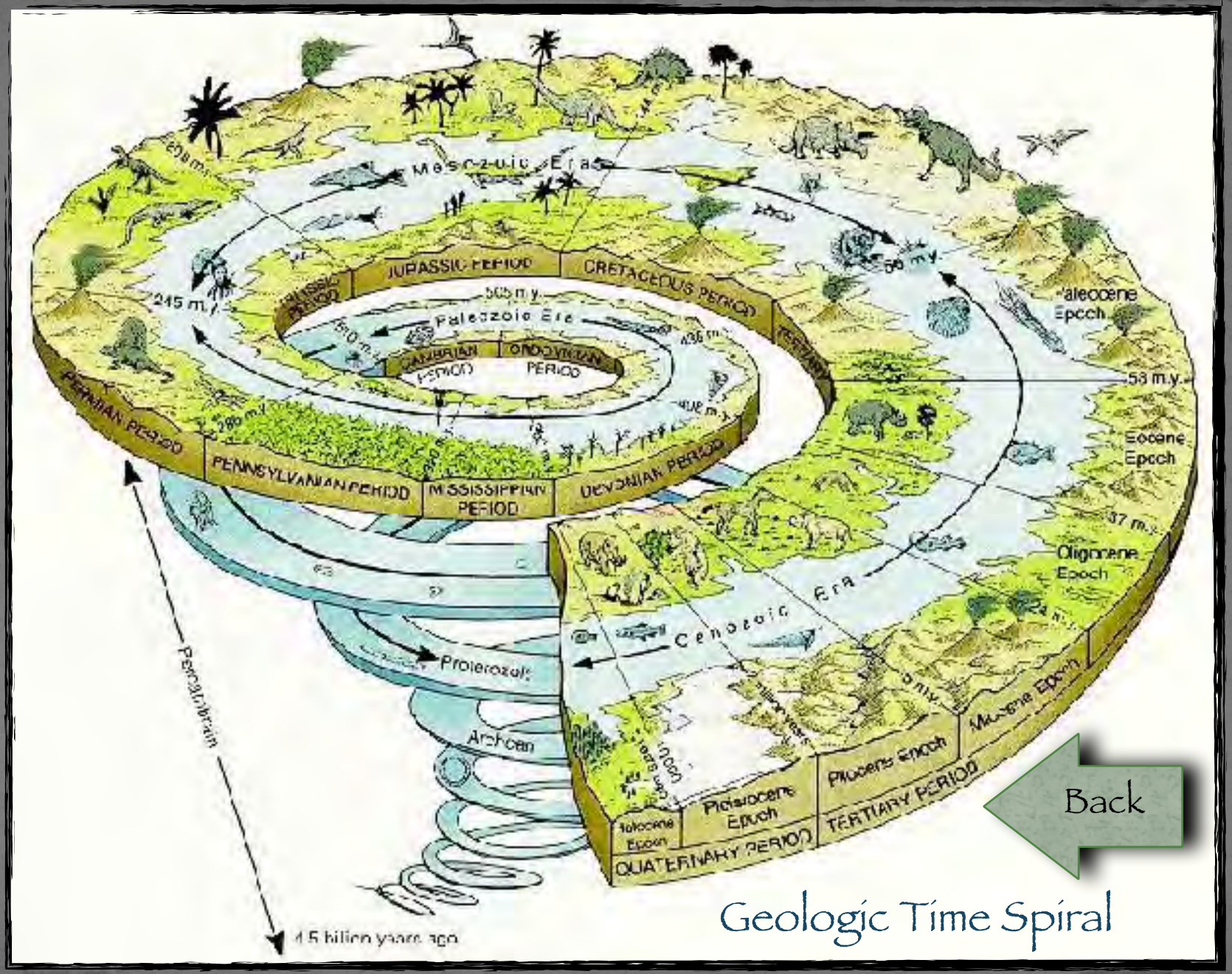


Geologic Time Spiral

Click on picture to enlarge



Back

Geologic Time Spiral

GEOLOGIC TIME SCALE

EON	ERA	PERIOD		EPOCH	AGE IN MILLIONS OF YEARS BEFORE PRESENT
					Present
Phanerozoic	Cenozoic	Quaternary		Holocene	0.01
				Pleistocene	1.6
		Tertiary	Neogene	Pliocene	5.3
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				Eocene	57.8
				Paleocene	66.4
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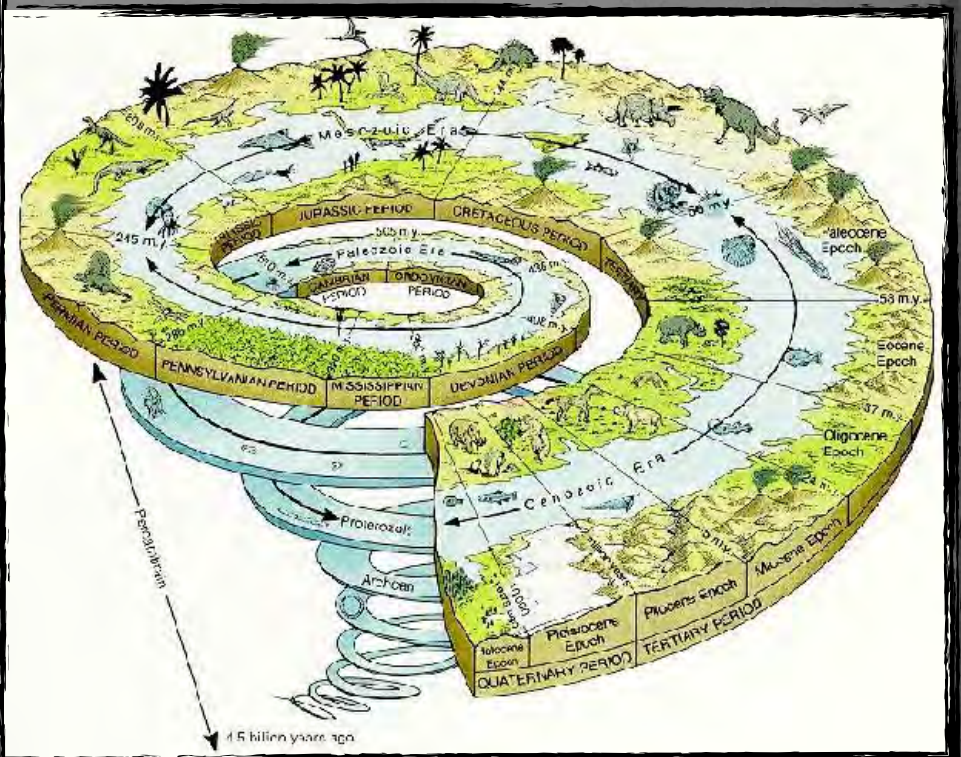
		Devonian			408
		Silurian			438
		Ordovician			505
		Cambrian			570
Precambrian	Proterozoic				2500
	Archean				3800
	Hadean				4550

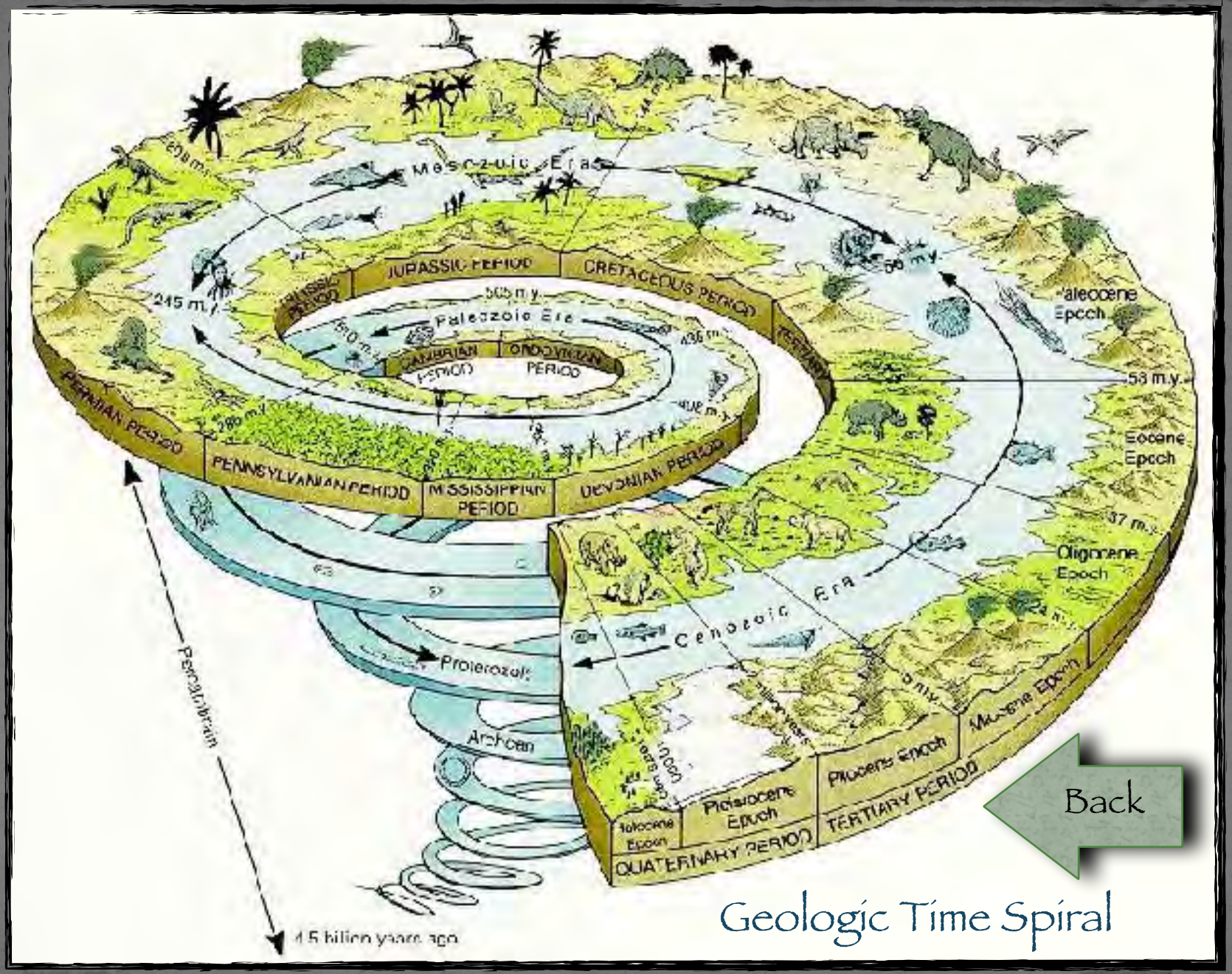
(From Decade of North American Geology, 1983)

Back to Station 10



Geologic Time Spiral

Click on picture to enlarge



Back

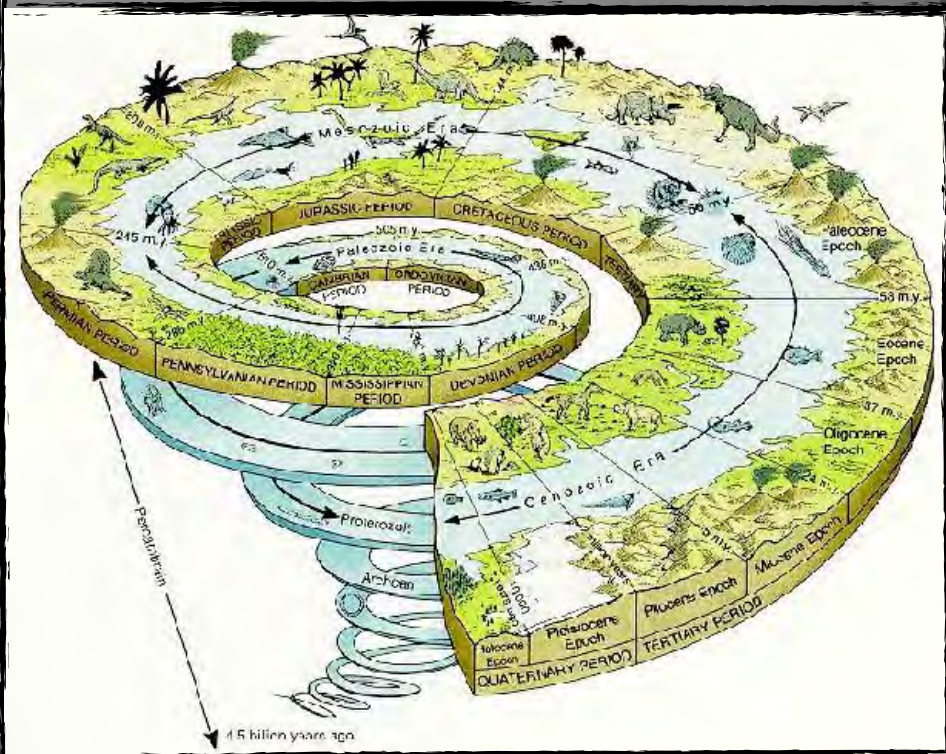
Geologic Time Spiral

GEOLOGIC TIME SCALE

EON	ERA	PERIOD		EPOCH	AGE IN MILLIONS OF YEARS BEFORE PRESENT
					Present
Phanerozoic	Cenozoic	Quaternary		Holocene	0.01
				Pleistocene	1.6
		Tertiary	Neogene	Pliocene	5.3
				Miocene	23.7
			Paleogene	Oligocene	36.6
				Eocene	57.8
				Paleocene	66.4
	Mesozoic	Cretaceous			144
		Jurassic			208
		Triassic			245
	Paleozoic	Permian			286
		Carboniferous	Pennsylvanian		320
			Mississippian		360
		Devonian			408
		Silurian			438
		Ordovician			505
		Cambrian			570
Precambrian	Proterozoic				2500
	Archean				3800
	Hadean				4550

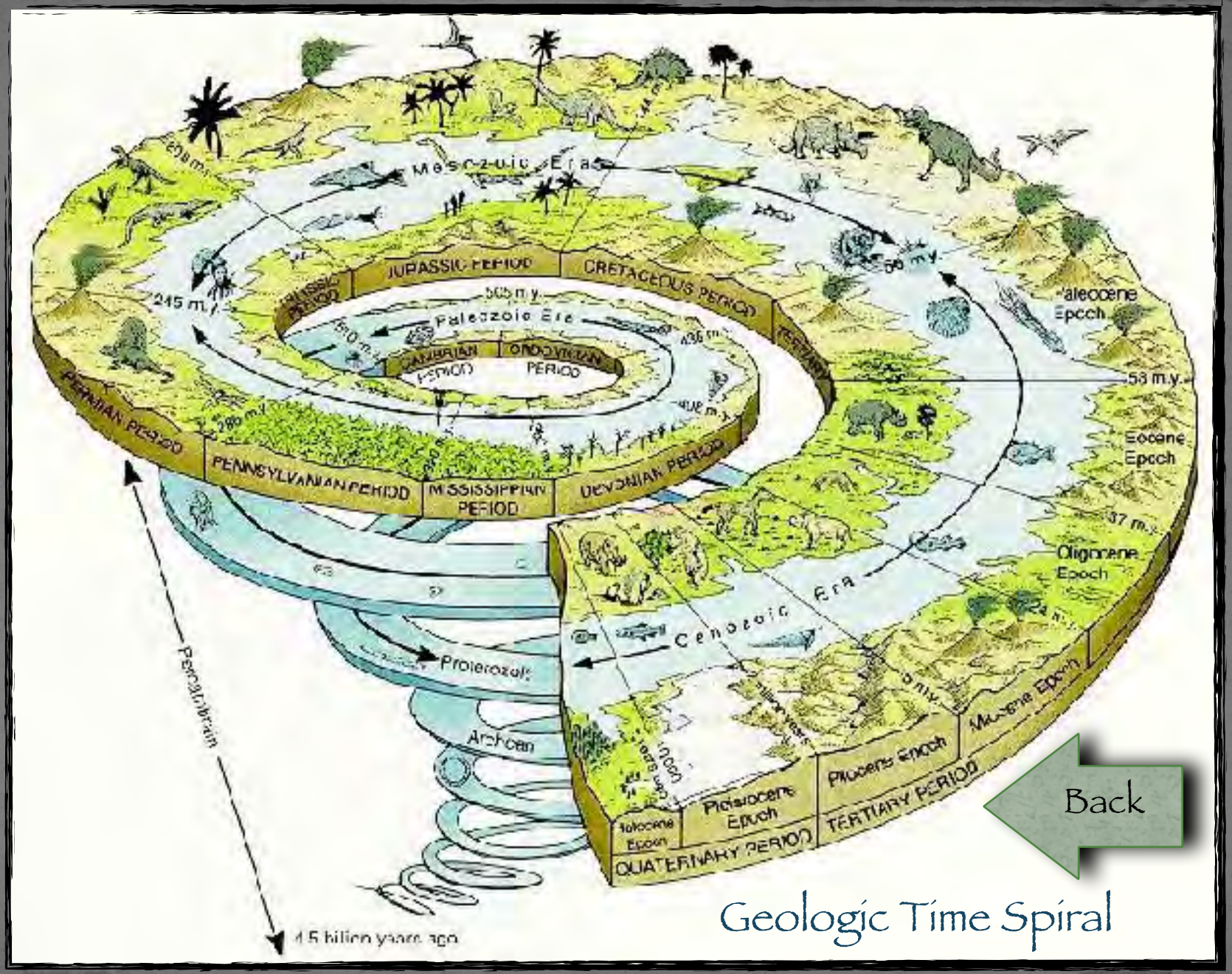
(From Decade of North American Geology, 1983)

Back to Station 11



Geologic Time Spiral

Click on picture to enlarge



Back

Geologic Time Spiral

GEOLOGIC TIME SCALE

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		Cambrian			570
Precambrian	Proterozoic				2500
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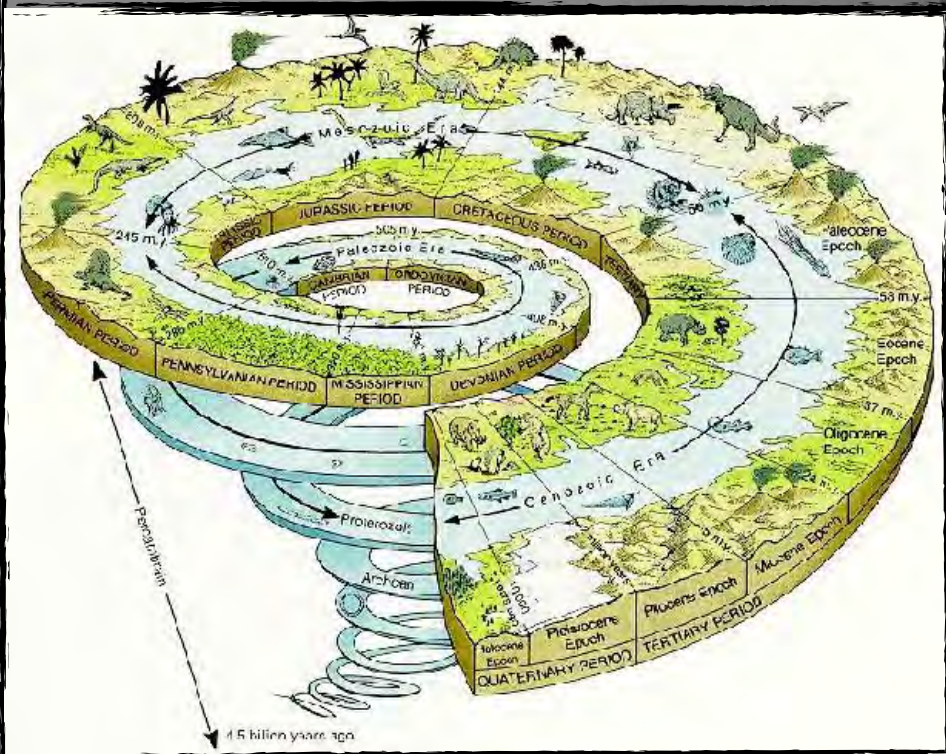
(From Decade of North American Geology, 1983)

Back to Station 13



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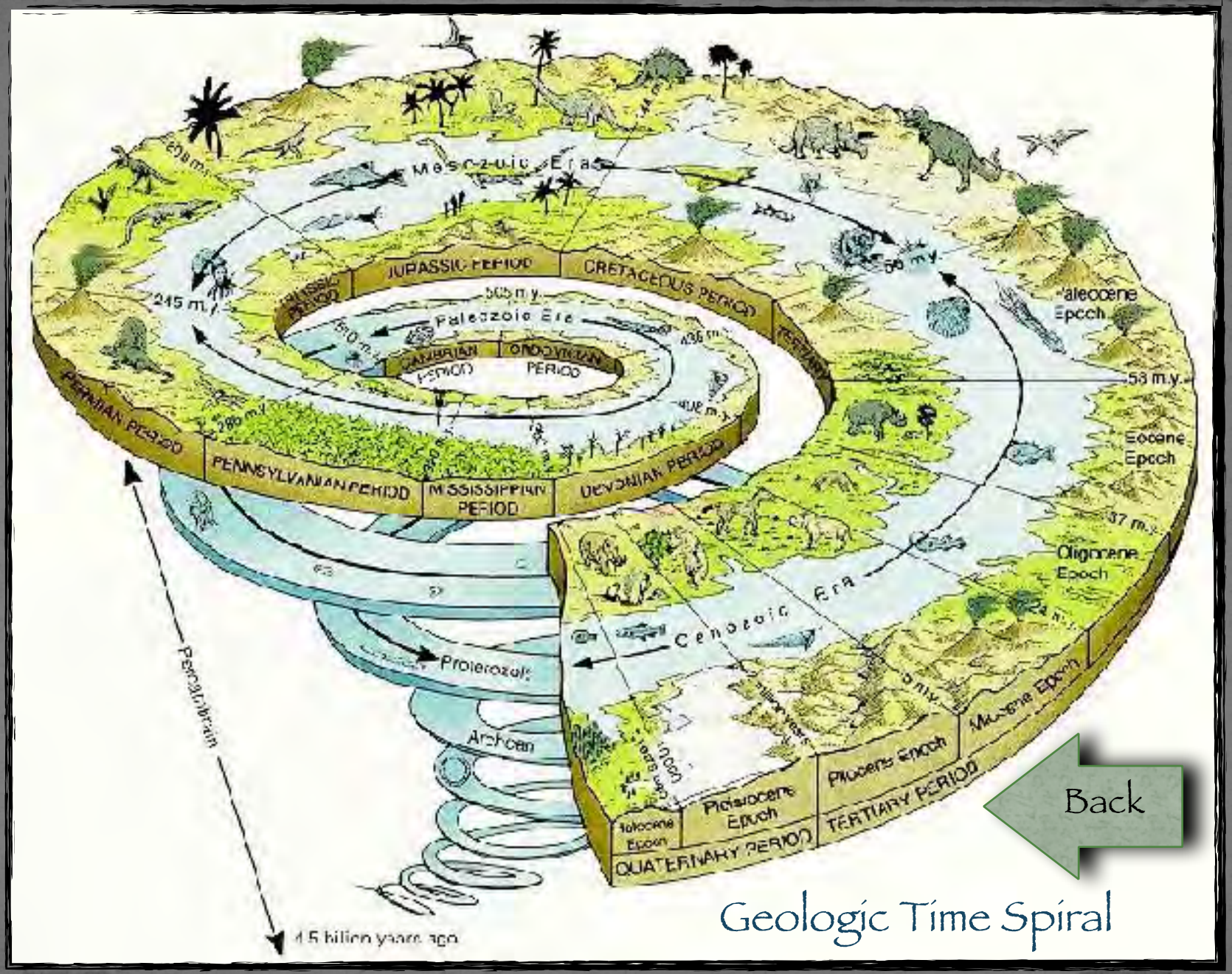

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Geologic Time Spiral

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		Cambrian			570
Precambrian	Proterozoic				2500
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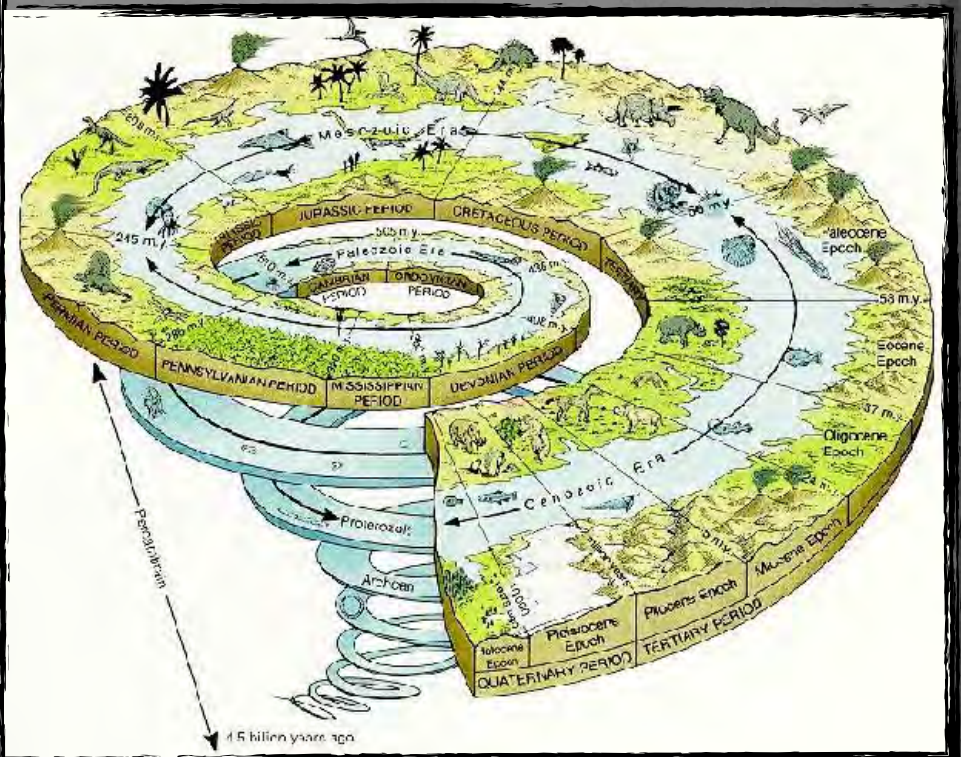
	Hadean				4550

(From Decade of North American Geology, 1983)

Back to Station 15



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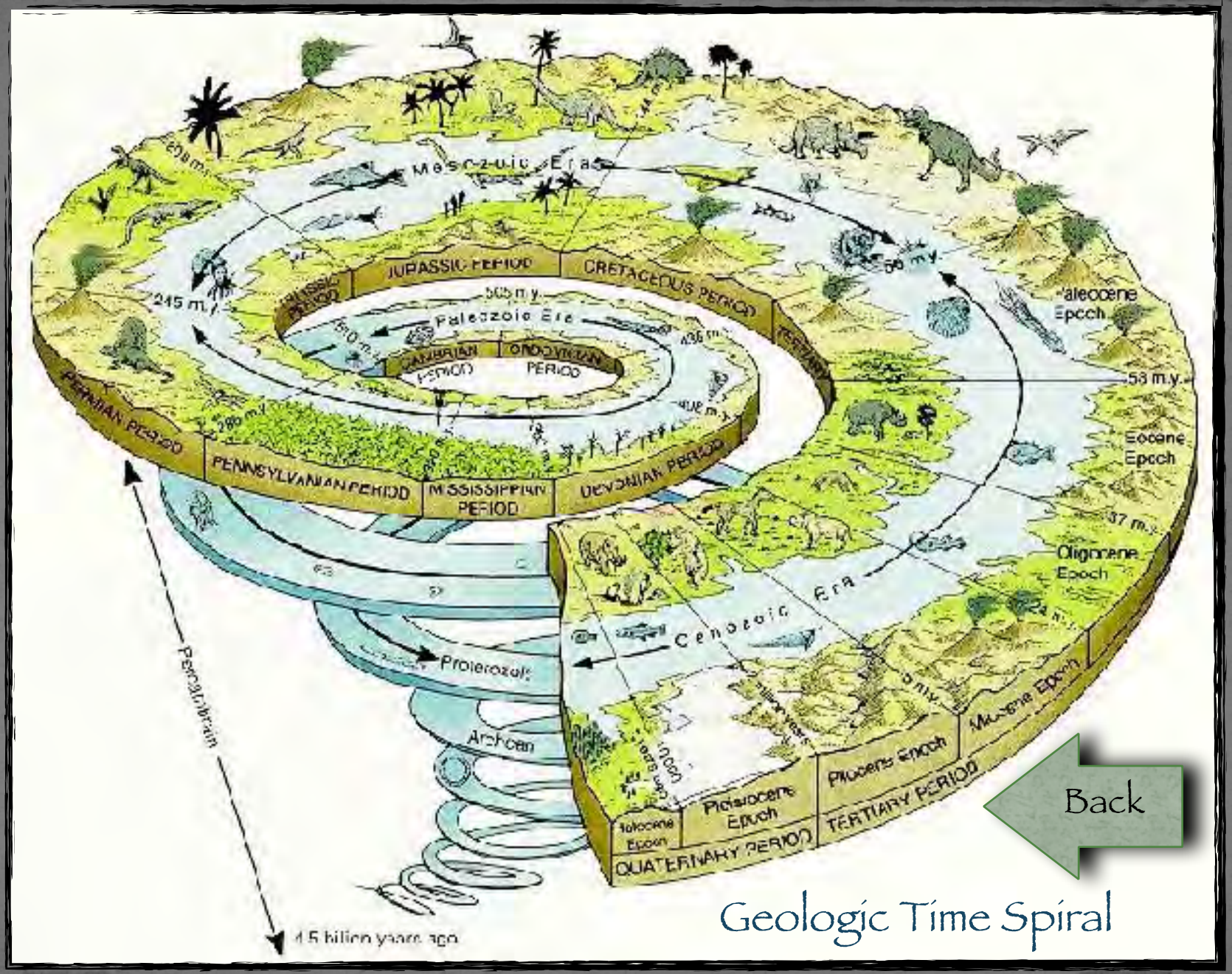

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Geologic Time Spiral

GEOLOGIC TIME SCALE

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Precambrian	Proterozoic				2500
	Archean				3800
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(From Decade of North American Geology, 1983)

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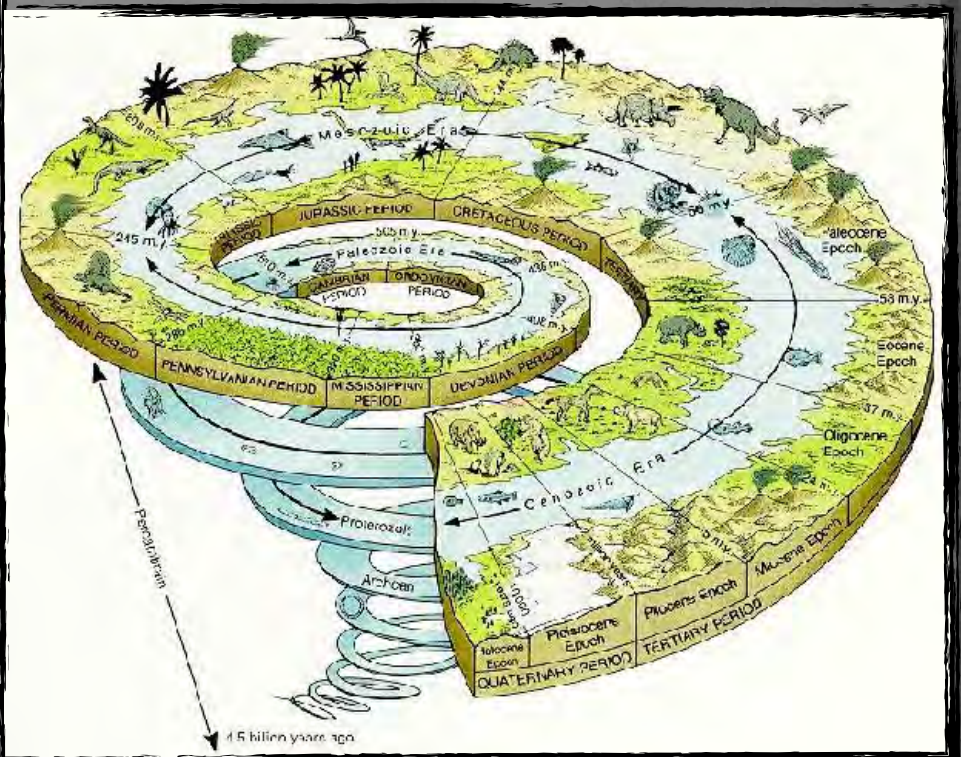

Geologic Time Spiral

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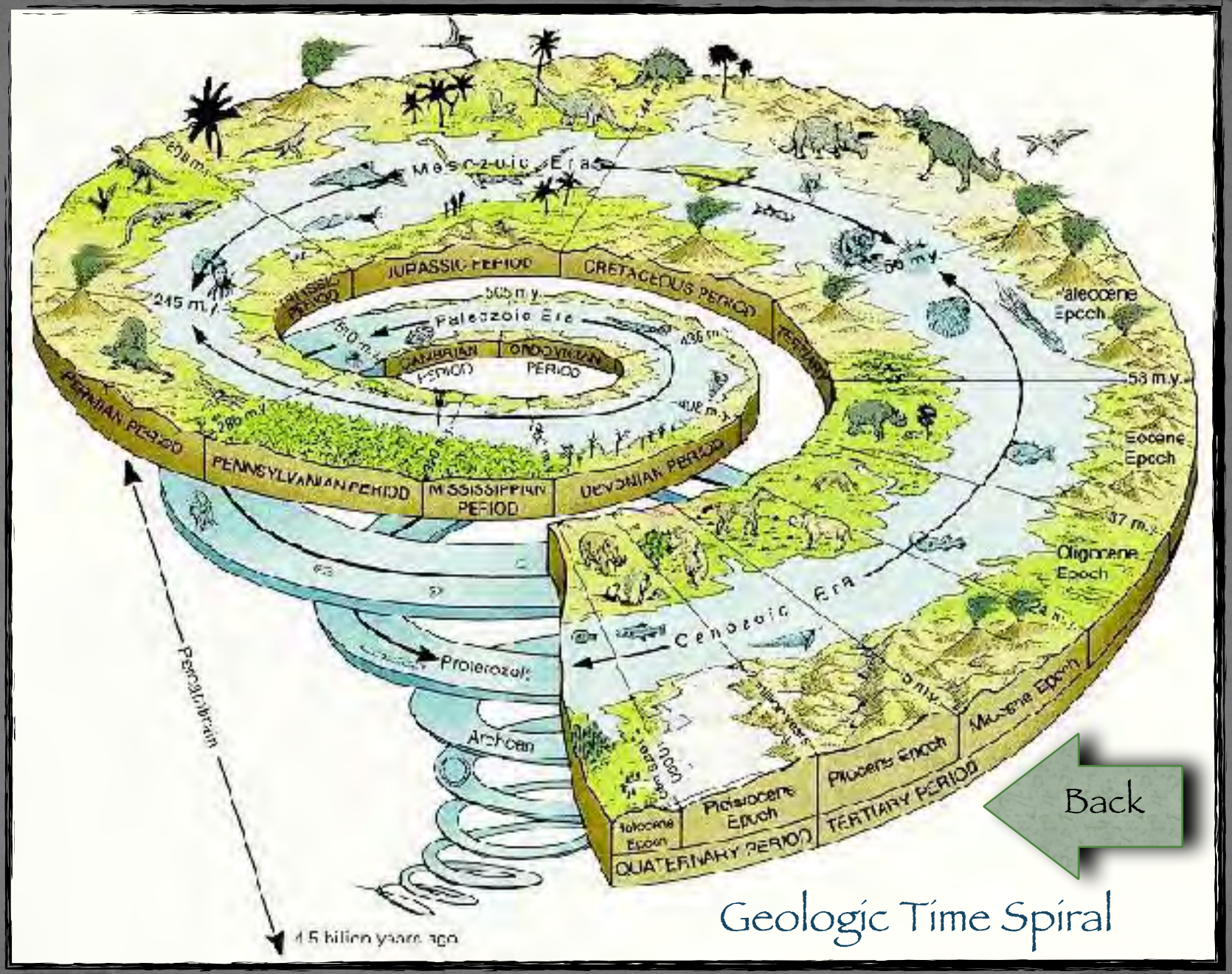

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Geologic Time Spiral

GEOLOGIC TIME SCALE

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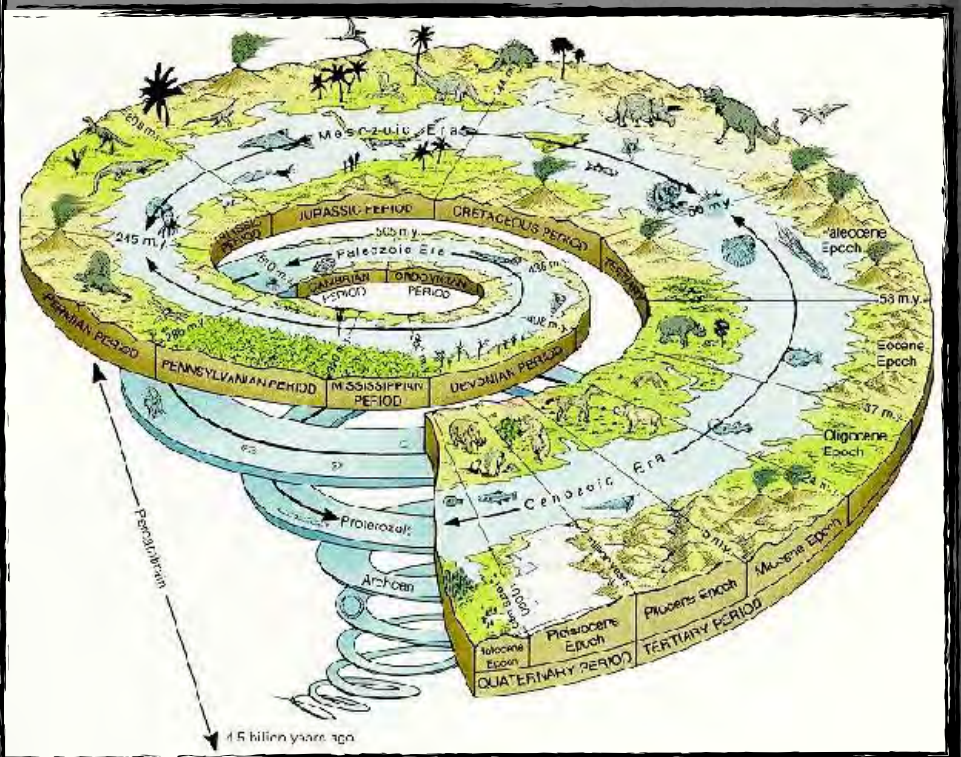
		Cambrian			570
Precambrian	Proterozoic				2500
	Archean				3800
	Hadean				4550

(From Decade of North American Geology, 1983)

Back to Station 17



Geologic Time Spiral

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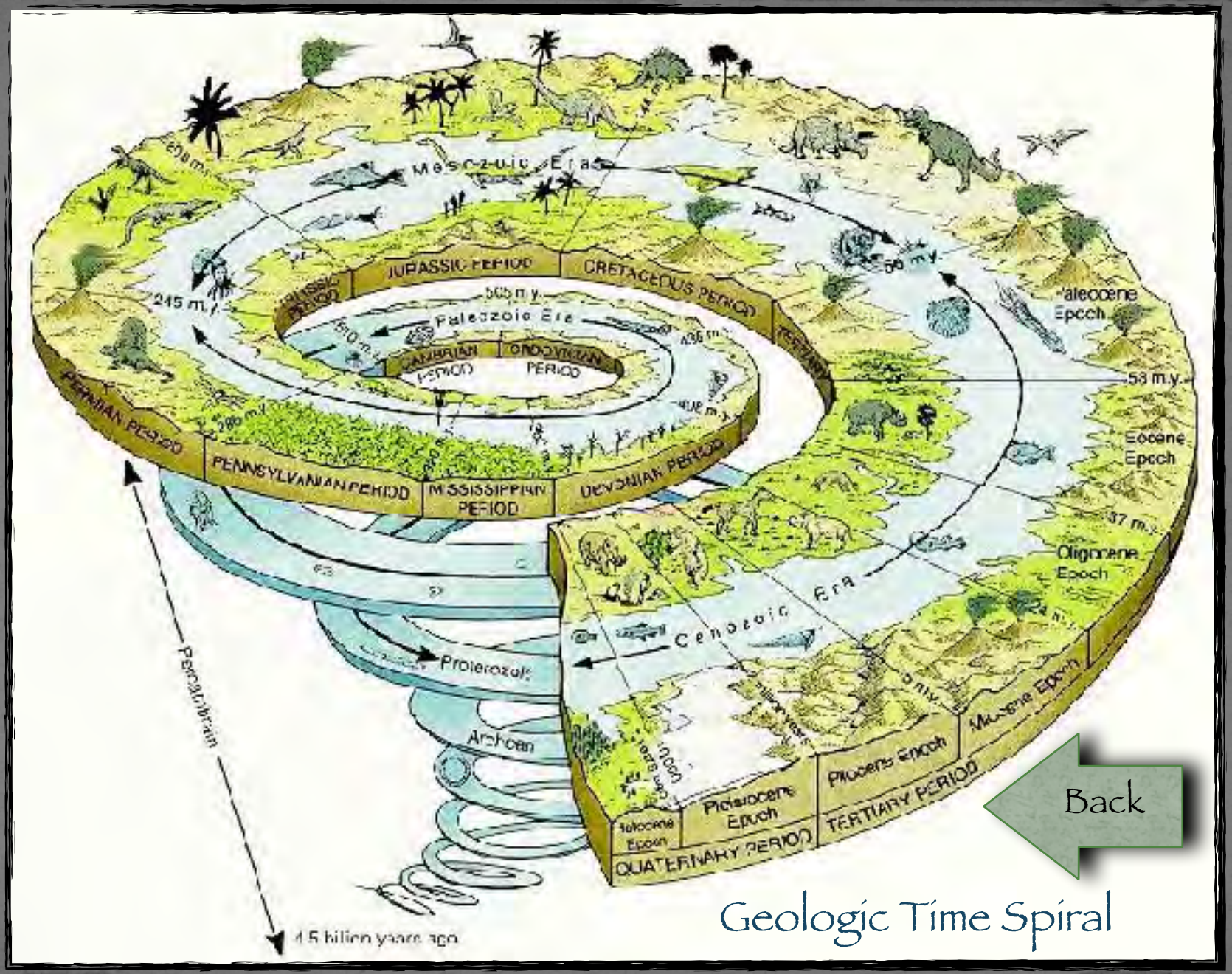

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Geologic Time Spiral

GEOLOGIC TIME SCALE

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		Cambrian			570
Precambrian	Proterozoic				2500
	Archean				3800
	Hadean				4550

(From Decade of North American Geology, 1983)

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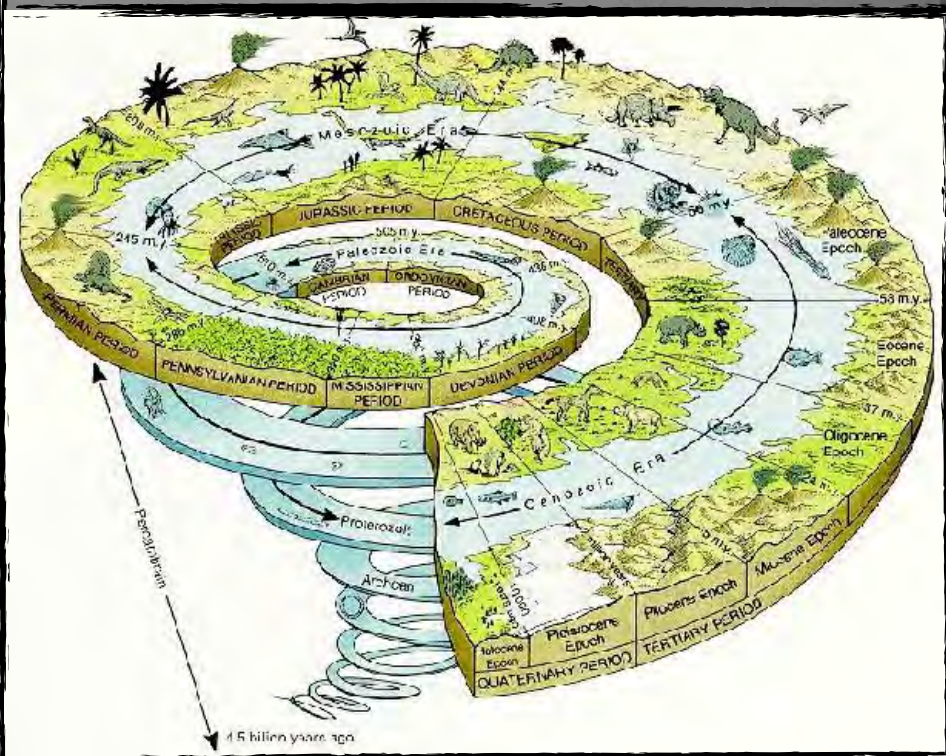
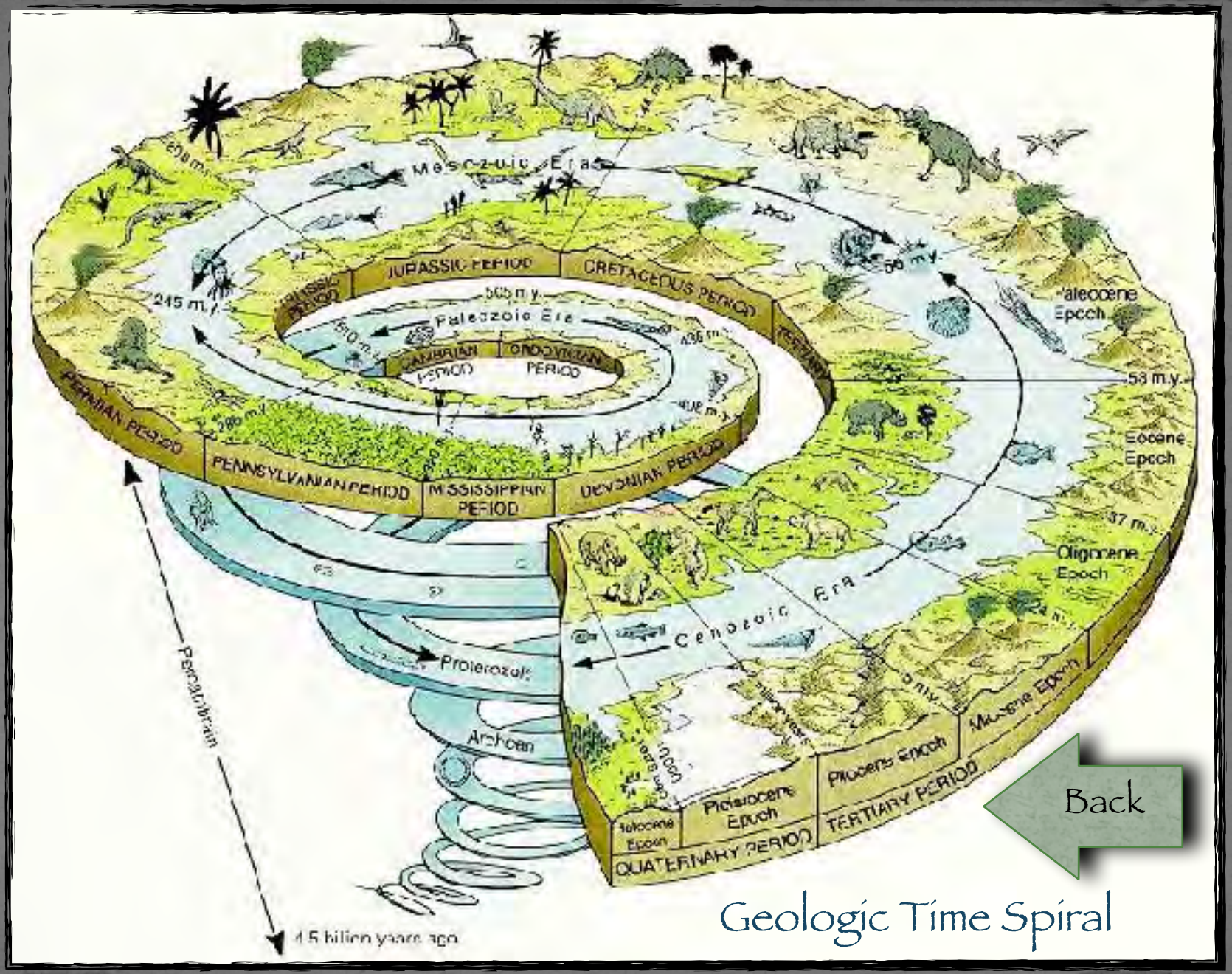


Geologic Time Spiral

Click on picture to enlarge



Back

Geologic Time Spiral

GEOLOGIC TIME SCALE

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		Cambrian			570
Precambrian	Proterozoic				2500
	Archean				3800
	Hadean				4550

(From Decade of North American Geology, 1983)

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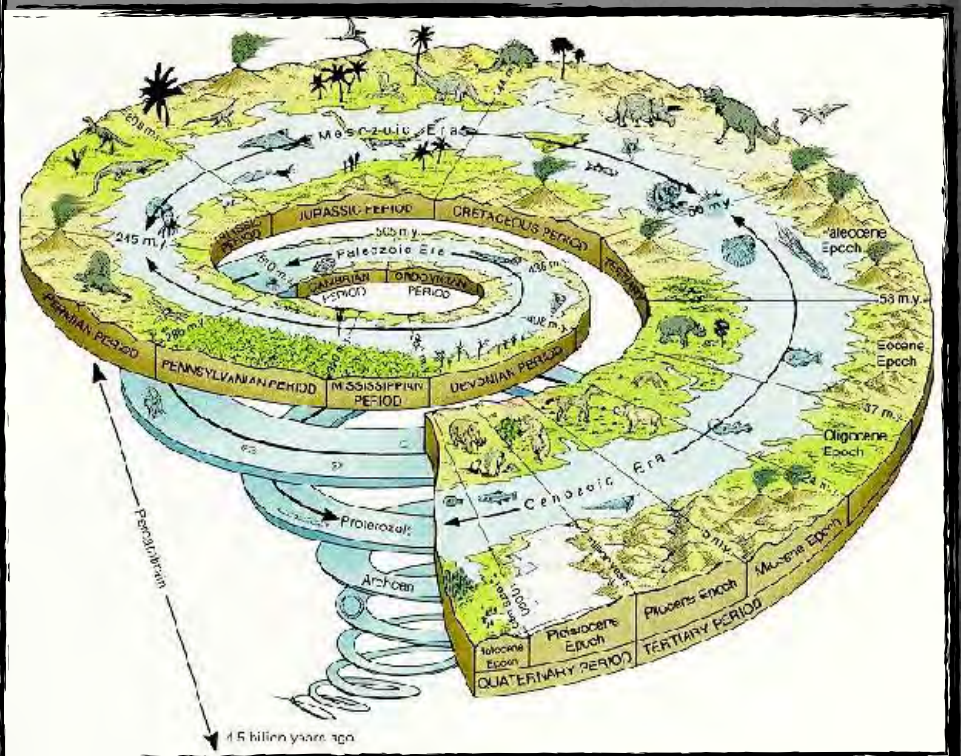

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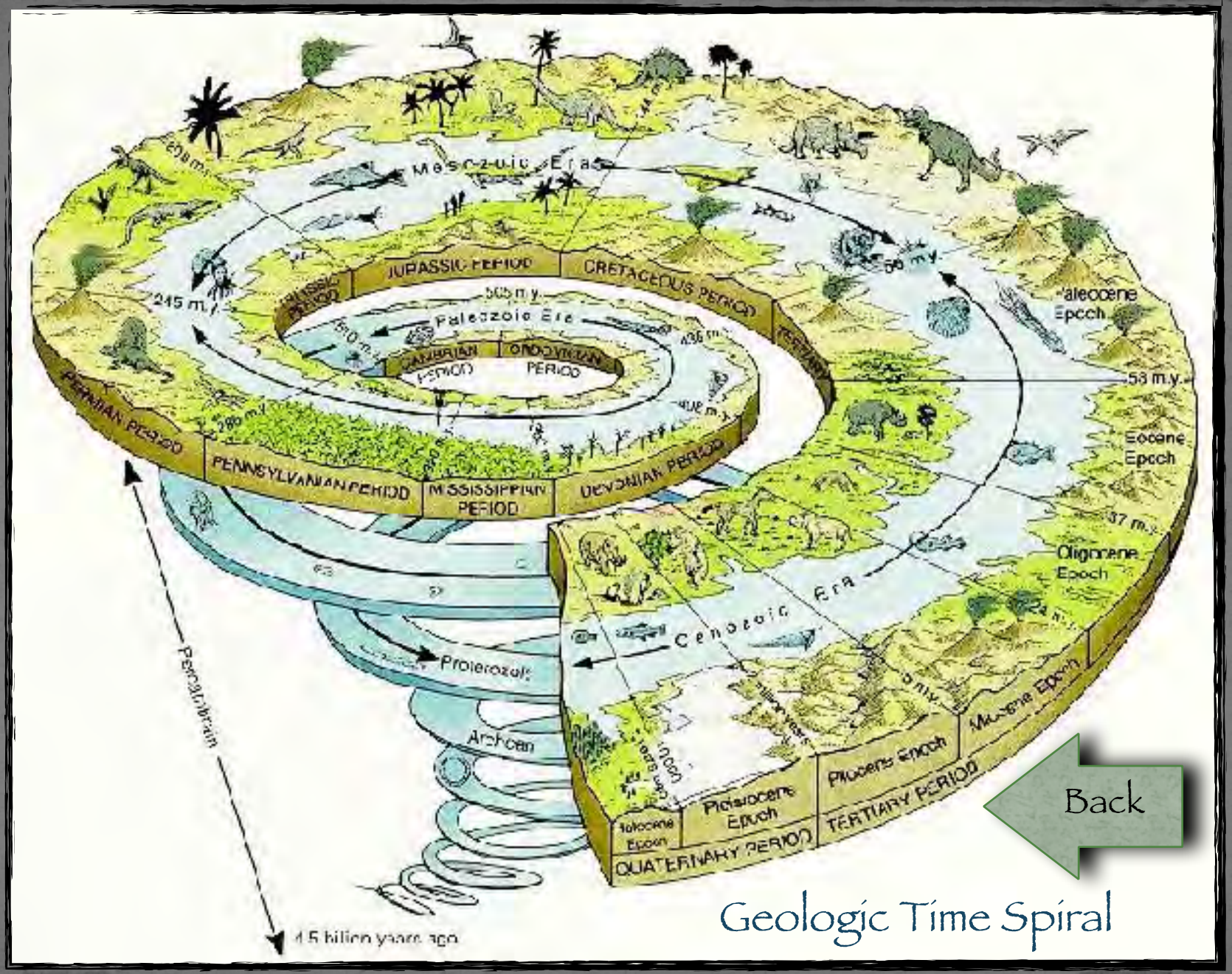

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Geologic Time Spiral

GEOLOGIC TIME SCALE

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		Silurian			438
		Ordovician			505
		Cambrian			570
Precambrian	Proterozoic				2500
	Archean				3800
	Hadean				4550

(From Decade of North American Geology, 1983)

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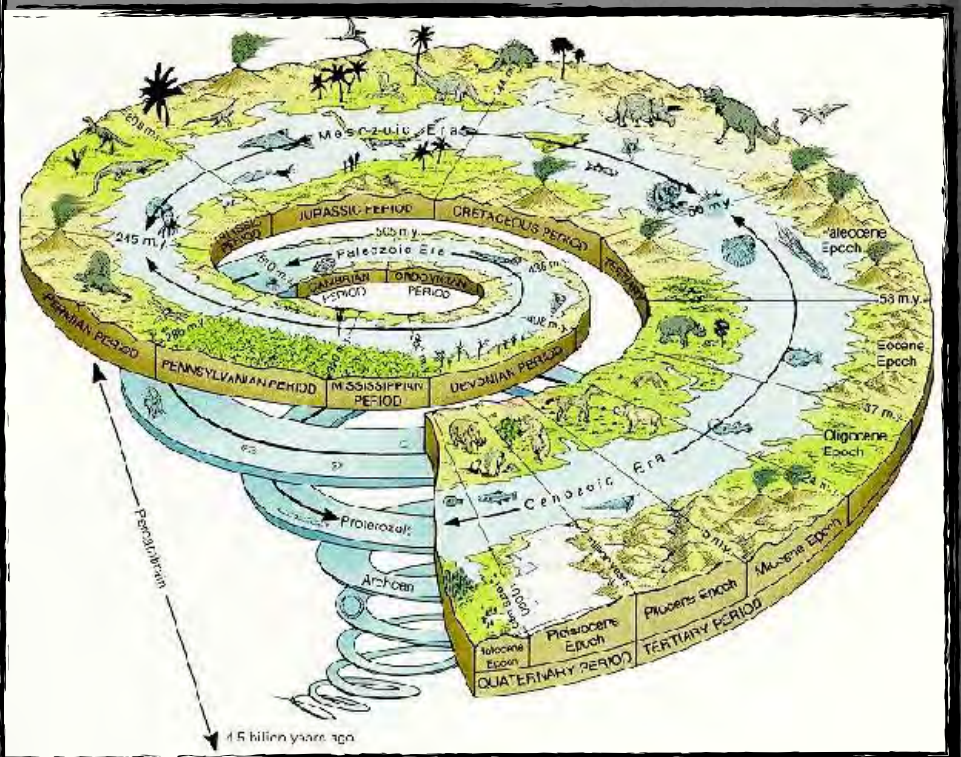
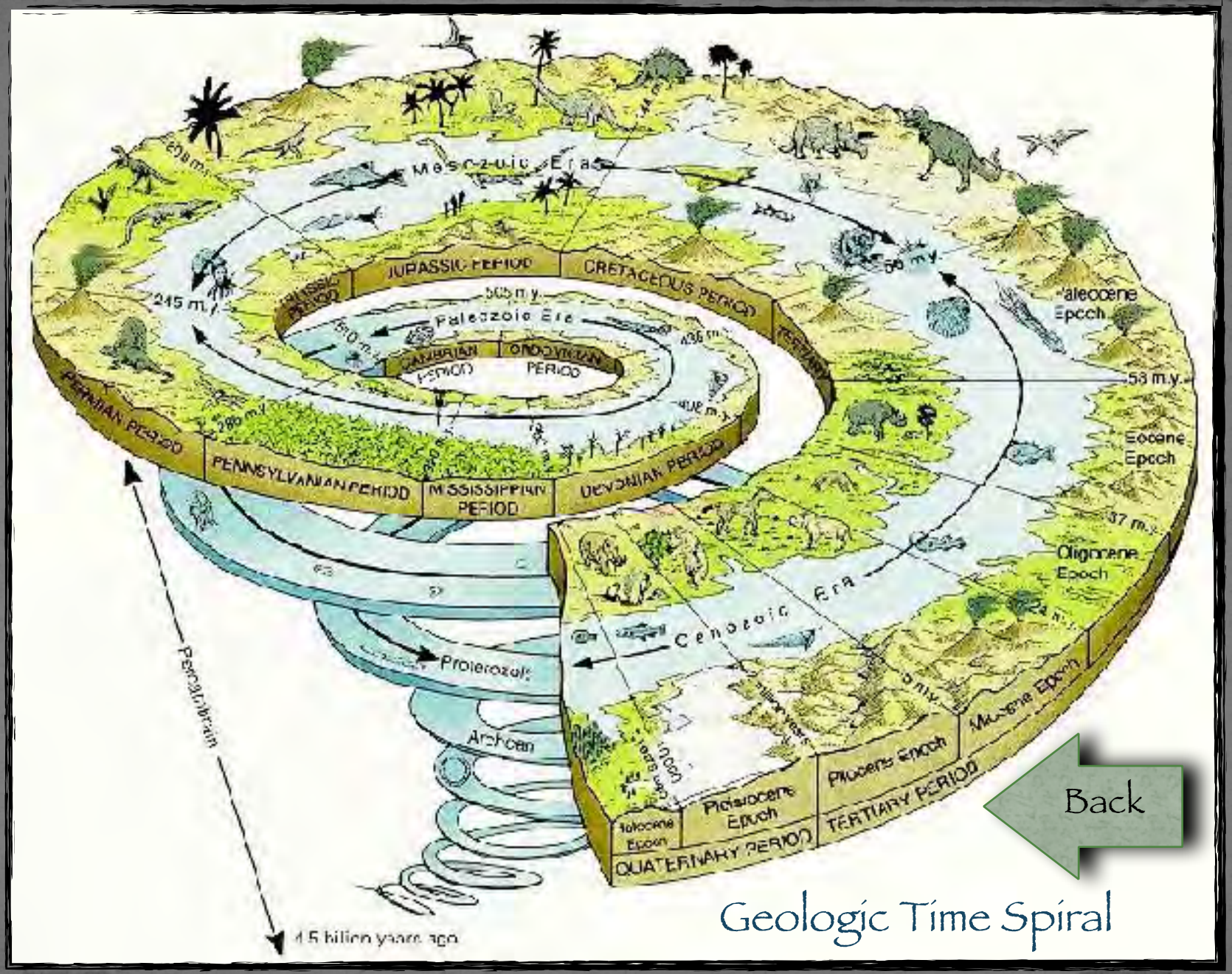


Geologic Time Spiral

Click on picture to enlarge



Back

Geologic Time Spiral

GEOLOGIC TIME SCALE

EON	ERA	PERIOD		EPOCH	AGE IN MILLIONS OF YEARS BEFORE PRESENT
					Present
Phanerozoic	Cenozoic	Quaternary		Holocene	0.01
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		Tertiary	Neogene	Pliocene	5.3
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		Devonian			408
		Silurian			438
		Ordovician			505
		Cambrian			570
Precambrian	Proterozoic				2500
	Archean				3800
	Hadean				4550

(From Decade of North American Geology, 1983)

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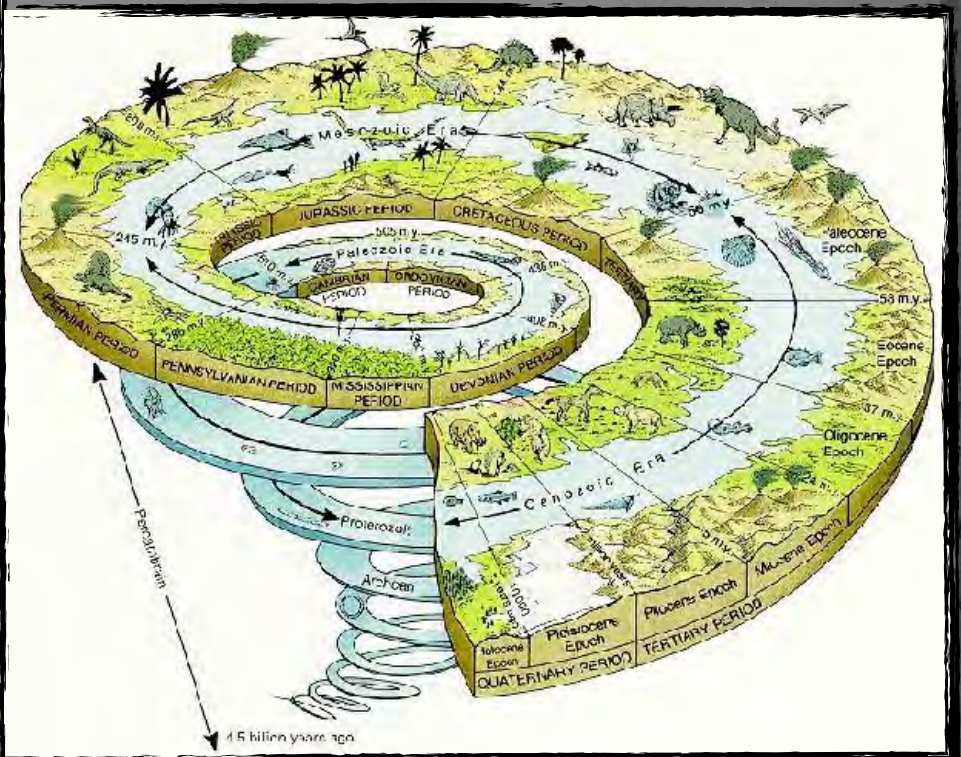

Geologic Time Spiral

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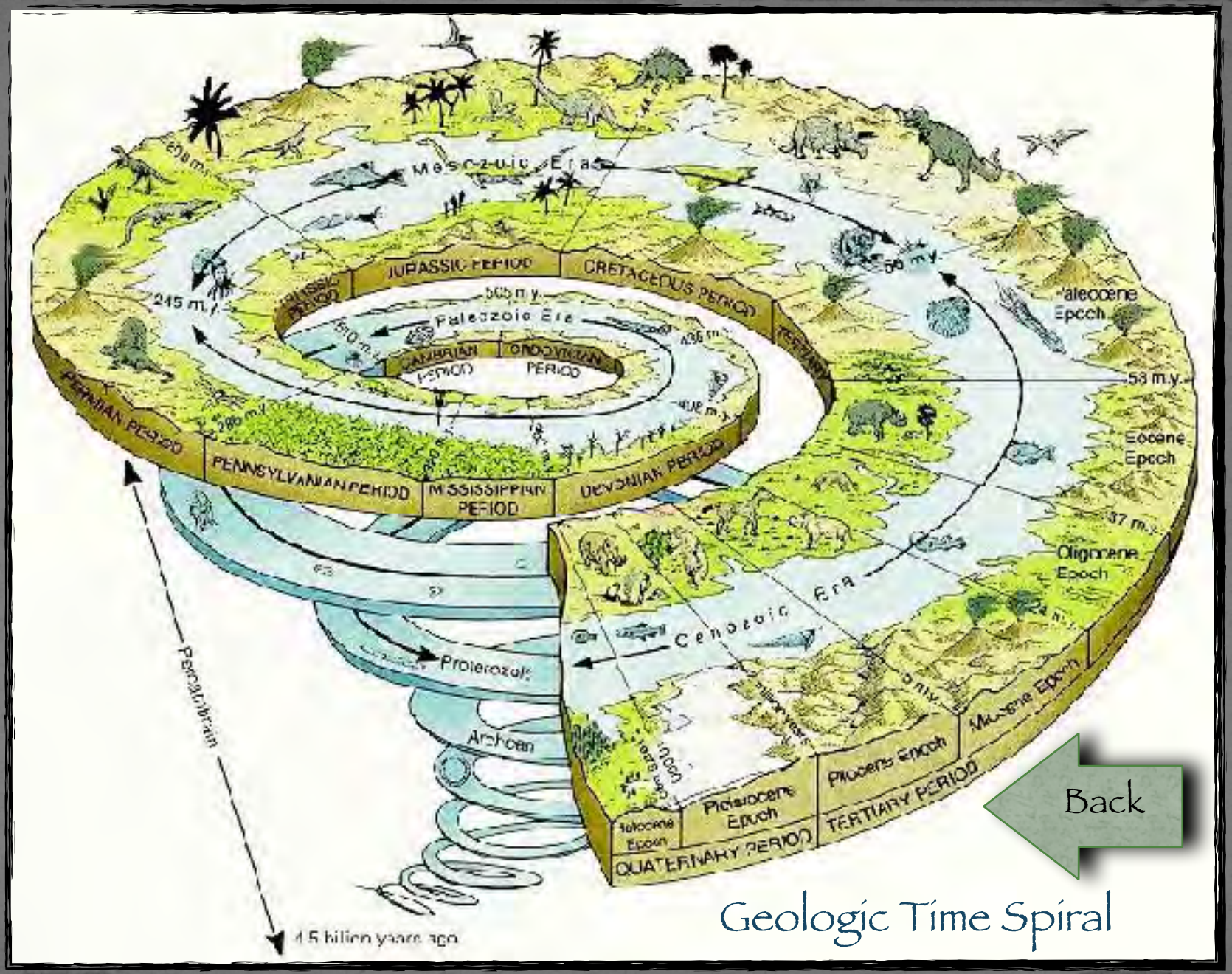

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Geologic Time Spiral

GEOLOGIC TIME SCALE

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		Cambrian			570
Precambrian	Proterozoic				2500
	Archean				3800
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(From Decade of North American Geology, 1983)

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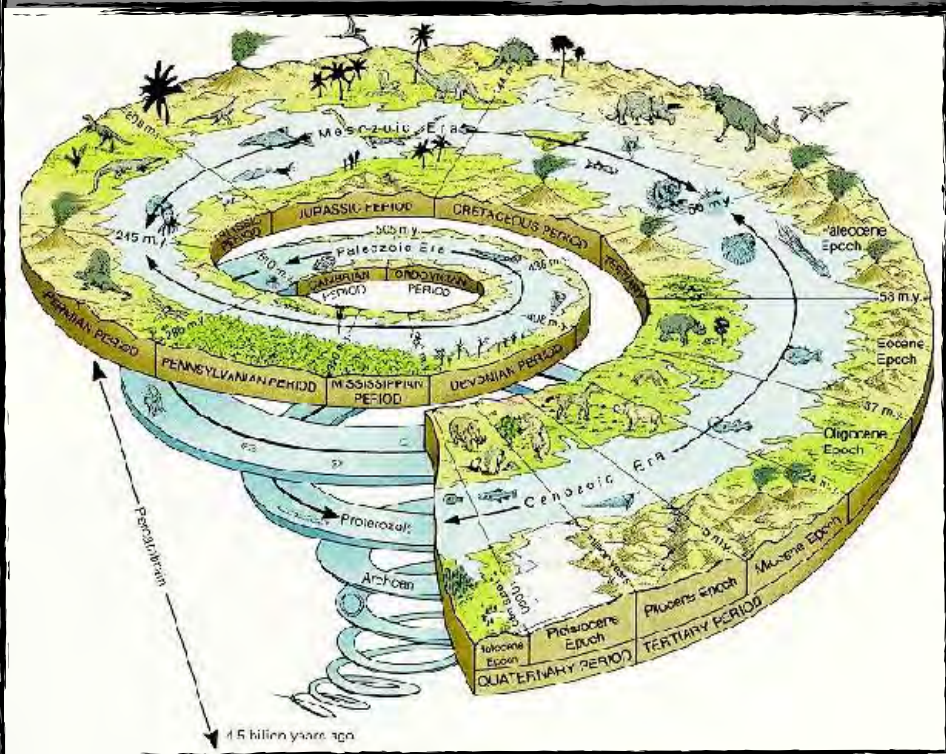
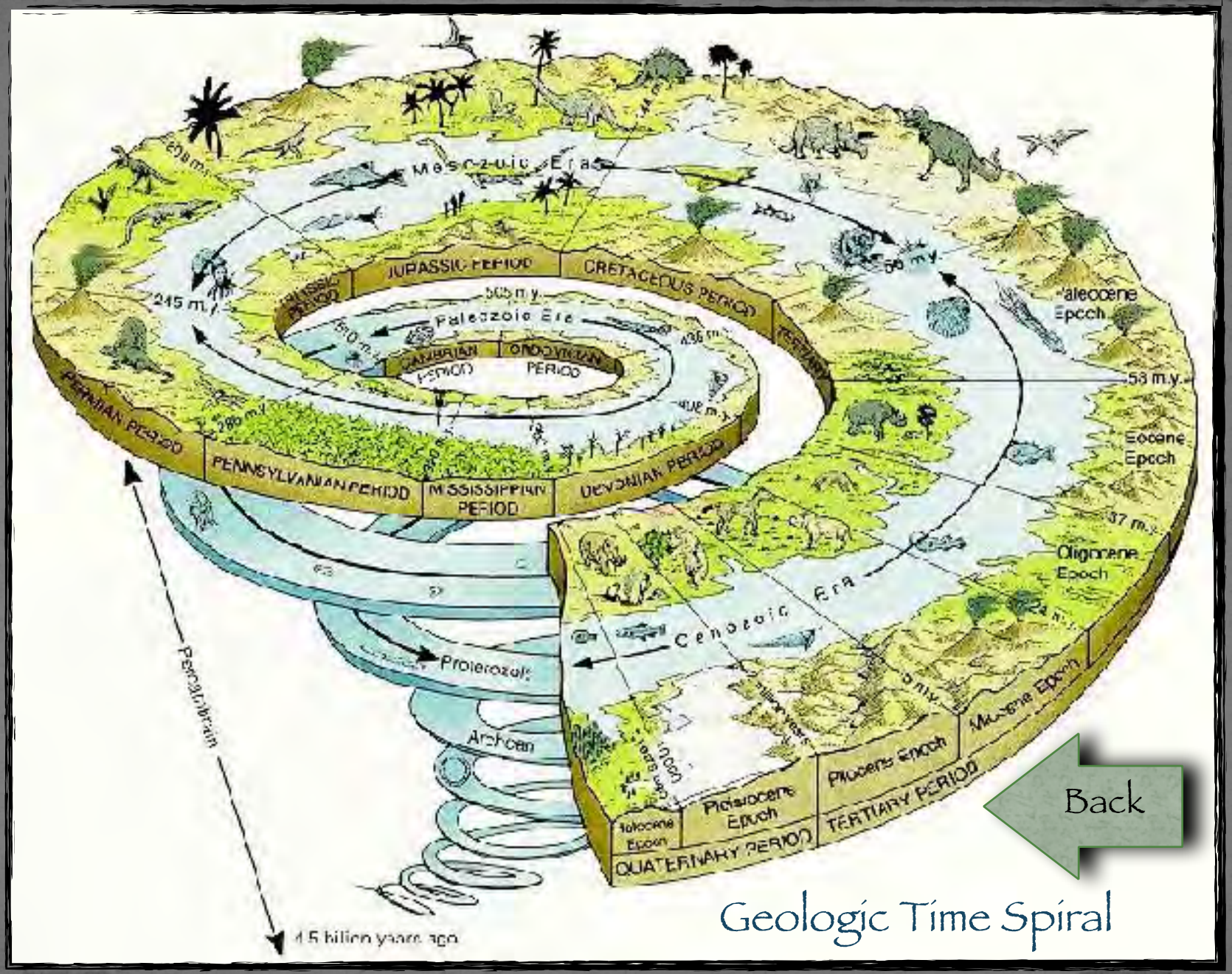


Geologic Time Spiral

Click on picture to enlarge



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Geologic Time Spiral

GEOLOGIC TIME SCALE

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(From Decade of North American Geology, 1983)

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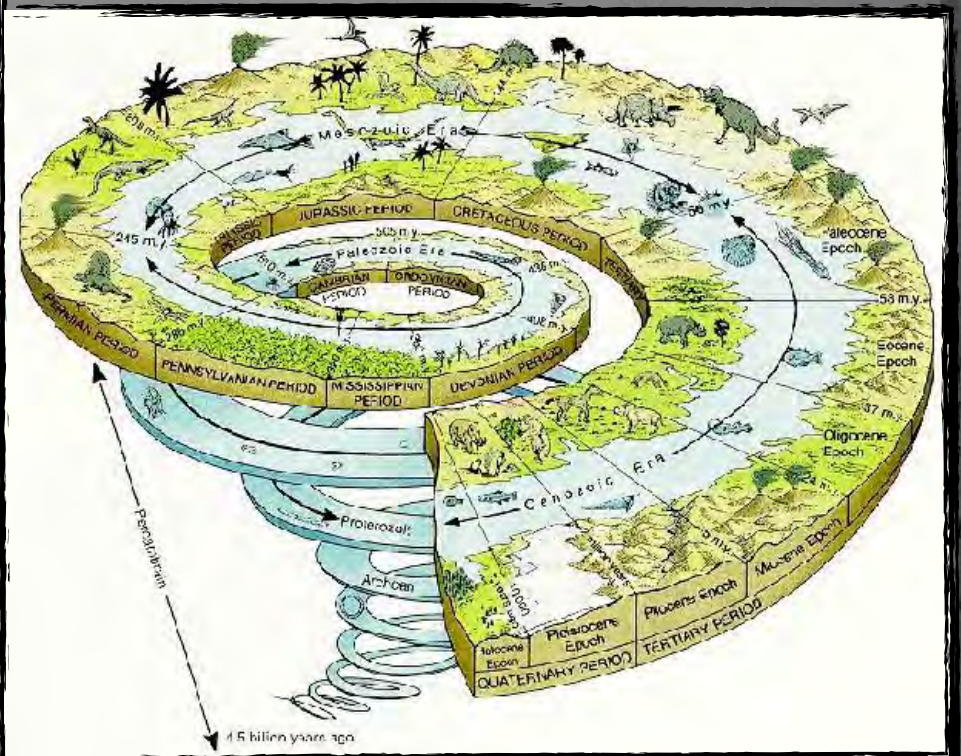

Geologic Time Spiral

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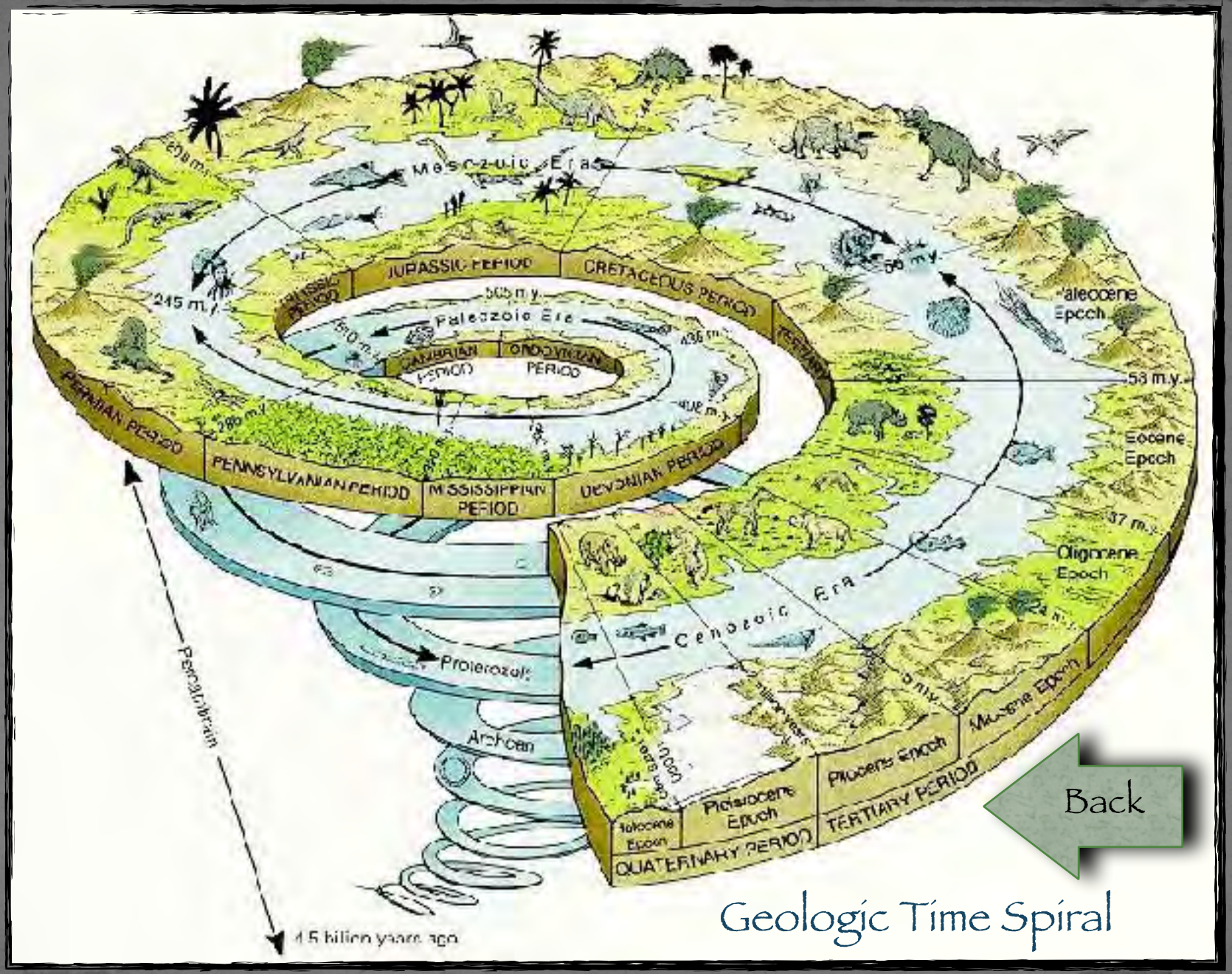

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Geologic Time Spiral

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(From Decade of North American Geology, 1983)

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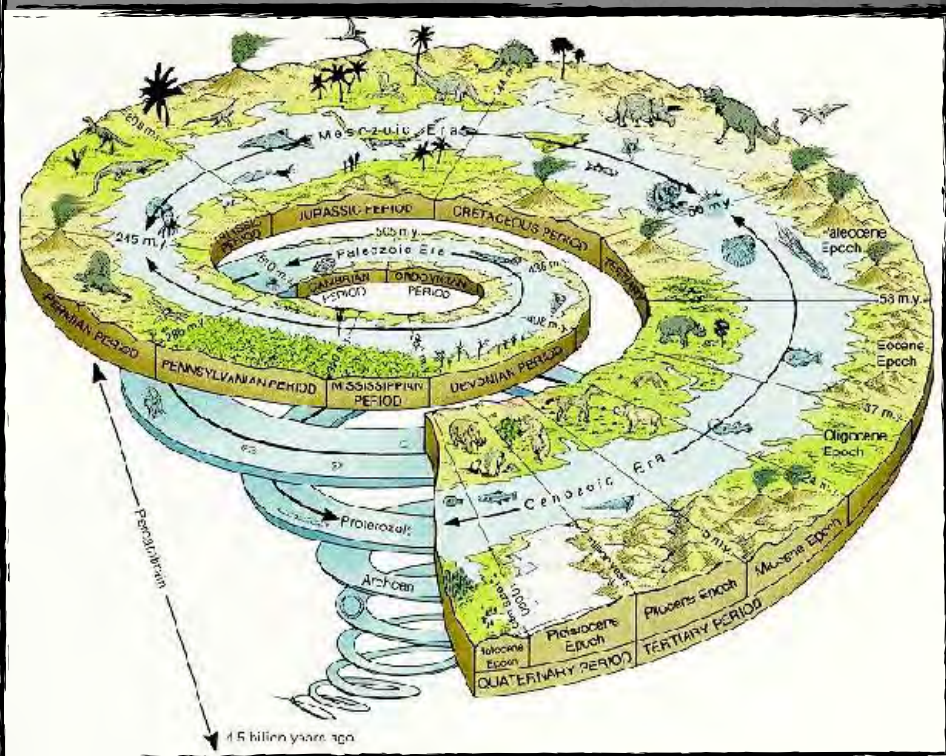
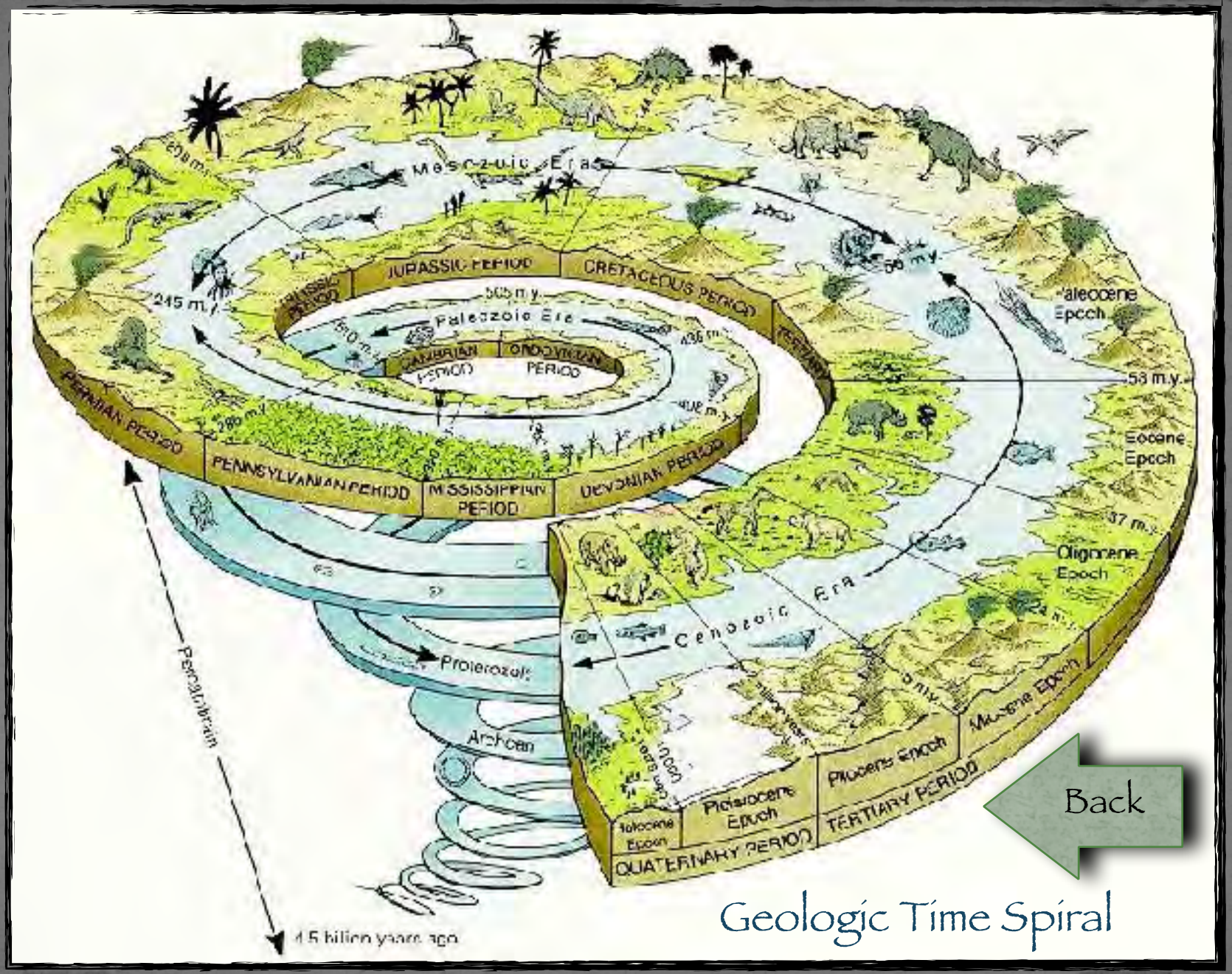


Geologic Time Spiral

Click on picture to enlarge



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Geologic Time Spiral

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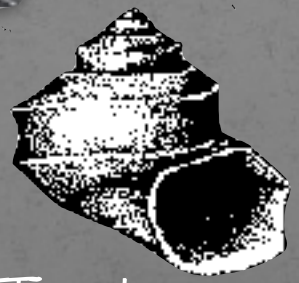
Hormotoma

CLUE: Which of these three samples looks the most like sample 4?

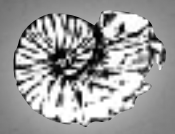
Aulacostephanus



Trochonema

Sample 4

Acanthoscaphites
(Ammonite Cephalopod)



Cretaceous

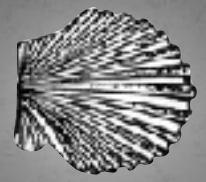
Carcharodon
(Shark Tooth)

Tertiary - Miocene

Eospirifer radiatus
(Brachiopod)

Silurian

Pecten jeffersonius
(Scallop)



Tertiary - Quaternary

Pentremites
(Echinoderm)

Mississippian

RETURN TO STATION 4

Flexicalymene meeki
(Trilobite)

Silurian

Meekoceras gracilitatis
(Ammonite Cephalopod)

Triassic

Michelinoceras sociale
(Cephalopod)

Ordovician

Munsteroceras parallelum
(Ammonite Cephalopod)

Mississippian

Neospirifer triplicatus
(Brachiopod)

Pennsylvanian

Oleneothyris harlani
(Brachiopod)

Cretaceous

Equus
(Horse Tooth)

Quaternary

Merychippus
(Horse tooth)

Tertiary - Miocene

Phacops rana
(Trilobite)

Devonian

Spirifer pellaensis
(Brachiopod)

Mississippian

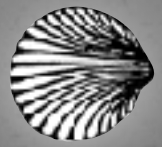
Tetragramma agassizi
(Sea Urchin)

Cretaceous

Turritella alticostata
(Snail)

Tertiary

Venericardia robustus
(Clam)



Tertiary

Crinoid
("sea lilly")

Mississippian

Acanthoscaphites
(Ammonite Cephalopod)

Cretaceous

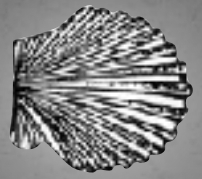
Carcharodon
(Shark Tooth)

Tertiary - Miocene

Eospirifer radiatus
(Brachiopod)

Silurian

Pecten jeffersonius
(Scallop)



Tertiary - Quaternary

Pentremites
(Echinoderm)

Mississippian

RETURN TO STATION 5

Flexicalymene meeki
(Trilobite)

Silurian

Meekoceras gracilitatis
(Ammonite Cephalopod)

Triassic

Michelinoceras sociale
(Cephalopod)

Ordovician

Munsteroceras parallelum
(Ammonite Cephalopod)

Mississippian

Neospirifer triplicatus
(Brachiopod)

Pennsylvanian

Oleneothyris harlani
(Brachiopod)

Cretaceous

Equus
(Horse Tooth)

Quaternary

Merychippus
(Horse tooth)

Tertiary - Miocene

Phacops rana
(Trilobite)

Devonian

Spirifer pellaensis
(Brachiopod)

Mississippian

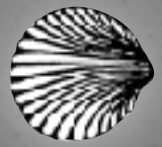
Tetragramma agassizi
(Sea Urchin)

Cretaceous

Turritella alticostata
(Snail)

Tertiary

Venericardia robustus
(Clam)



Tertiary

Crinoid
("sea lilly")

Mississippian

Acanthoscaphites
(Ammonite Cephalopod)

Cretaceous

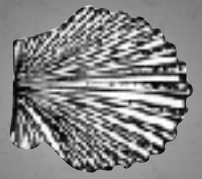
Carcharodon
(Shark Tooth)

Tertiary - Miocene

Eospirifer radiatus
(Brachiopod)

Silurian

Pecten jeffersonius
(Scallop)



Tertiary - Quaternary

Pentremites
(Echinoderm)

Mississippian

RETURN TO STATION 6

Flexicalymene meeki
(Trilobite)

Silurian

Mucrospirifer thedfordensis
(Brachiopod)

Devonian

Michelinoceras sociale
(Cephalopod)

Ordovician

Click image to enlarge

Munsteroceras parallelum
(Ammonite Cephalopod)

Mississippian

Neospirifer triplicatus
(Brachiopod)

Pennsylvanian

Oleneothyris harlani
(Brachiopod)

Cretaceous

Equus
(Horse Tooth)

Quaternary

Merychippus
(Horse tooth)

Tertiary - Miocene

Phacops rana
(Trilobite)

Devonian

Spirifer pellaensis
(Brachiopod)

Mississippian

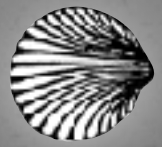
Tetragramma agassizi
(Sea Urchin)

Cretaceous

Turritella alticostata
(Snail)

Tertiary

Venericardia robustus
(Clam)



Tertiary

Crinoid
("sea lilly")

Mississippian

Acanthoscaphites
(Ammonite Cephalopod)

Cretaceous

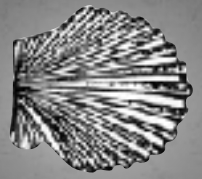
Carcharodon
(Shark Tooth)

Tertiary - Miocene

Eospirifer radiatus
(Brachiopod)

Silurian

Pecten jeffersonius
(Scallop)



Tertiary - Quaternary

Pentremites
(Echinoderm)

Mississippian

RETURN TO STATION 7

Flexicalymene meeki
(Trilobite)

Silurian

Meekoceras gracilitatis
(Ammonite Cephalopod)

Triassic

Michelinoceras sociale
(Cephalopod)

Ordovician

Equus
(Horse Tooth)

Quaternary

Click to enlarge

Munsteroceras parallelum
(Ammonite Cephalopod)

Mississippian

Neospirifer triplicatus
(Brachiopod)

Pennsylvanian

Oleneothyris harlani
(Brachiopod)

Cretaceous

Merychippus
(Horse tooth)

Tertiary - Miocene

Phacops rana
(Trilobite)

Devonian

Spirifer pellaensis
(Brachiopod)

Mississippian

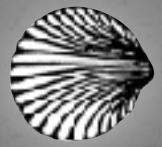
Tetragramma agassizi
(Sea Urchin)

Cretaceous

Turritella alticostata
(Snail)

Tertiary

Venericardia robustus
(Clam)



Tertiary

Crinoid
("sea lilly")

Mississippian

CLUE: Which of these three samples looks the most like sample 12?

Return to Index

RETURN TO STATION 8

Olenoides

Calymene

Isotelus

Acanthoscaphites
(Ammonite Cephalopod)

Cretaceous

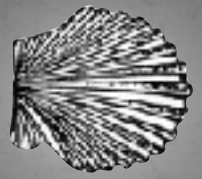
Carcharodon
(Shark Tooth)

Tertiary - Miocene

Eospirifer radiatus
(Brachiopod)

Silurian

Pecten jeffersonius
(Scallop)



Tertiary - Quaternary

Pentremites
(Echinoderm)

Mississippian

RETURN TO STATION 9

Flexicalymene meeki
(Trilobite)

Silurian

Meekoceras gracilitatis
(Ammonite Cephalopod)

Triassic

Michelinoceras sociale
(Cephalopod)

Ordovician

Munsteroceras parallelum
(Ammonite Cephalopod)

Mississippian

Neospirifer triplicatus
(Brachiopod)

Pennsylvanian

Oleneothyris harlani
(Brachiopod)

Cretaceous

Merychippus
(Horse tooth)

Tertiary - Miocene

Equus
(Horse Tooth)

Quaternary

Phacops rana
(Trilobite)

Devonian

Spirifer pellaensis
(Brachiopod)

Mississippian

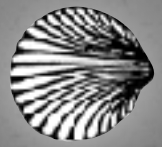
Tetragramma agassizi
(Sea Urchin)

Cretaceous

Turritella alticostata
(Snail)

Tertiary

Venericardia robustus
(Clam)



Tertiary

Crinoid
("sea lilly")

Mississippian

Acanthoscaphites
(Ammonite Cephalopod)

Cretaceous

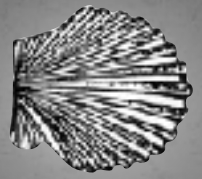
Carcharodon
(Shark Tooth)

Tertiary - Miocene

Eospirifer radiatus
(Brachiopod)

Silurian

Pecten jeffersonius
(Scallop)



Tertiary - Quaternary

Pentremites
(Echinoderm)

Mississippian

RETURN TO STATION 10

Flexicalymene meeki
(Trilobite)

Silurian

Meekoceras gracilitatis
(Ammonite Cephalopod)

Triassic

Michelinoceras sociale
(Cephalopod)

Ordovician

Munsteroceras parallelum
(Ammonite Cephalopod)

Mississippian

Neospirifer triplicatus
(Brachiopod)

Pennsylvanian

Oleneothyris harlani
(Brachiopod)

Cretaceous

Merychippus
(Horse tooth)

Tertiary - Miocene

Equus
(Horse Tooth)

Quaternary

Phacops rana
(Trilobite)

Devonian

Spirifer pellaensis
(Brachiopod)

Mississippian

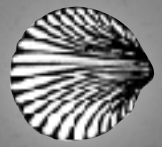
Tetragramma agassizi
(Sea Urchin)

Cretaceous

Turritella alticostata
(Snail)

Tertiary

Venericardia robustus
(Clam)

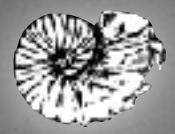


Tertiary

Crinoid
("sea lilly")

Mississippian

Acanthoscaphites
(Ammonite Cephalopod)



Cretaceous

Carcharodon
(Shark Tooth)

Tertiary - Miocene

Eospirifer radiatus
(Brachiopod)

Silurian

Pecten jeffersonius
(Scallop)

Tertiary - Quaternary

Pentremites
(Echinoderm)

Mississippian

RETURN TO STATION 11

Flexicalymene meeki
(Trilobite)

Silurian

Meekoceras gracilitatis
(Ammonite Cephalopod)

Triassic

Michelinoceras sociale
(Cephalopod)

Ordovician

Munsteroceras parallelum
(Ammonite Cephalopod)

Mississippian

Neospirifer triplicatus
(Brachiopod)

Pennsylvanian

Oleneothyris harlani
(Brachiopod)

Cretaceous

Merychippus
(Horse tooth)

Tertiary - Miocene

Equus
(Horse Tooth)

Quaternary

Phacops rana
(Trilobite)

Devonian

Spirifer pellaensis
(Brachiopod)

Mississippian

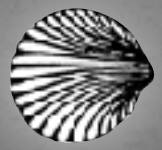
Tetragramma agassizi
(Sea Urchin)

Cretaceous

Turritella alticostata
(Snail)

Tertiary

Venericardia robustus
(Clam)



Tertiary

Crinoid
("sea lilly")

Mississippian

Acanthoscaphites
(Ammonite Cephalopod)

Cretaceous

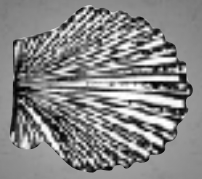
Carcharodon
(Shark Tooth)

Tertiary - Miocene

Eospirifer radiatus
(Brachiopod)

Silurian

Pecten jeffersonius
(Scallop)



Tertiary - Quaternary

Pentremites
(Echinoderm)

Mississippian

RETURN TO STATION 12

Flexicalymene meeki
(Trilobite)

Silurian

Meekoceras gracilitatis
(Ammonite Cephalopod)

Triassic

Michelinoceras sociale
(Cephalopod)

Ordovician

Munsteroceras parallelum
(Ammonite Cephalopod)

Mississippian

Neospirifer triplicatus
(Brachiopod)

Pennsylvanian

Oleneothyris harlani
(Brachiopod)

Cretaceous

Merychippus
(Horse tooth)

Tertiary - Miocene

Equus
(Horse Tooth)

Quaternary

Phacops rana
(Trilobite)

Devonian

Spirifer pellaensis
(Brachiopod)

Mississippian

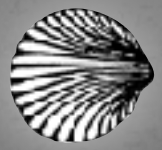
Tetragramma agassizi
(Sea Urchin)

Cretaceous

Turritella alticostata
(Snail)

Tertiary

Venericardia robustus
(Clam)



Tertiary

Crinoid
("sea lilly")

Mississippian

Acanthoscaphites
(Ammonite Cephalopod)

Cretaceous

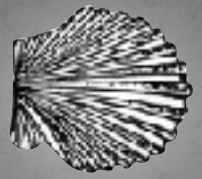
Carcharodon
(Shark Tooth)

Tertiary - Miocene

Eospirifer radiatus
(Brachiopod)

Silurian

Pecten jeffersonius
(Scallop)



Tertiary - Quaternary

Pentremites
(Echinoderm)

Mississippian

RETURN TO STATION 13

Flexicalymene meeki
(Trilobite)

Silurian

Meekoceras gracilitatis
(Ammonite Cephalopod)

Triassic

Michelinoceras sociale
(Cephalopod)

Ordovician

Merychippus
(Horse tooth)

Tertiary - Miocene

Click to enlarge

Munsteroceras parallelum
(Ammonite Cephalopod)

Mississippian

Neospirifer triplicatus
(Brachiopod)

Pennsylvanian

Oleneothyris harlani
(Brachiopod)

Cretaceous

Equus
(Horse Tooth)

Quaternary

Phacops rana
(Trilobite)

Devonian

Spirifer pellaensis
(Brachiopod)

Mississippian

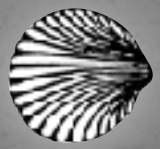
Tetragramma agassizi
(Sea Urchin)

Cretaceous

Turritella alticostata
(Snail)

Tertiary

Venericardia robustus
(Clam)



Tertiary

Crinoid
("sea lilly")

Mississippian

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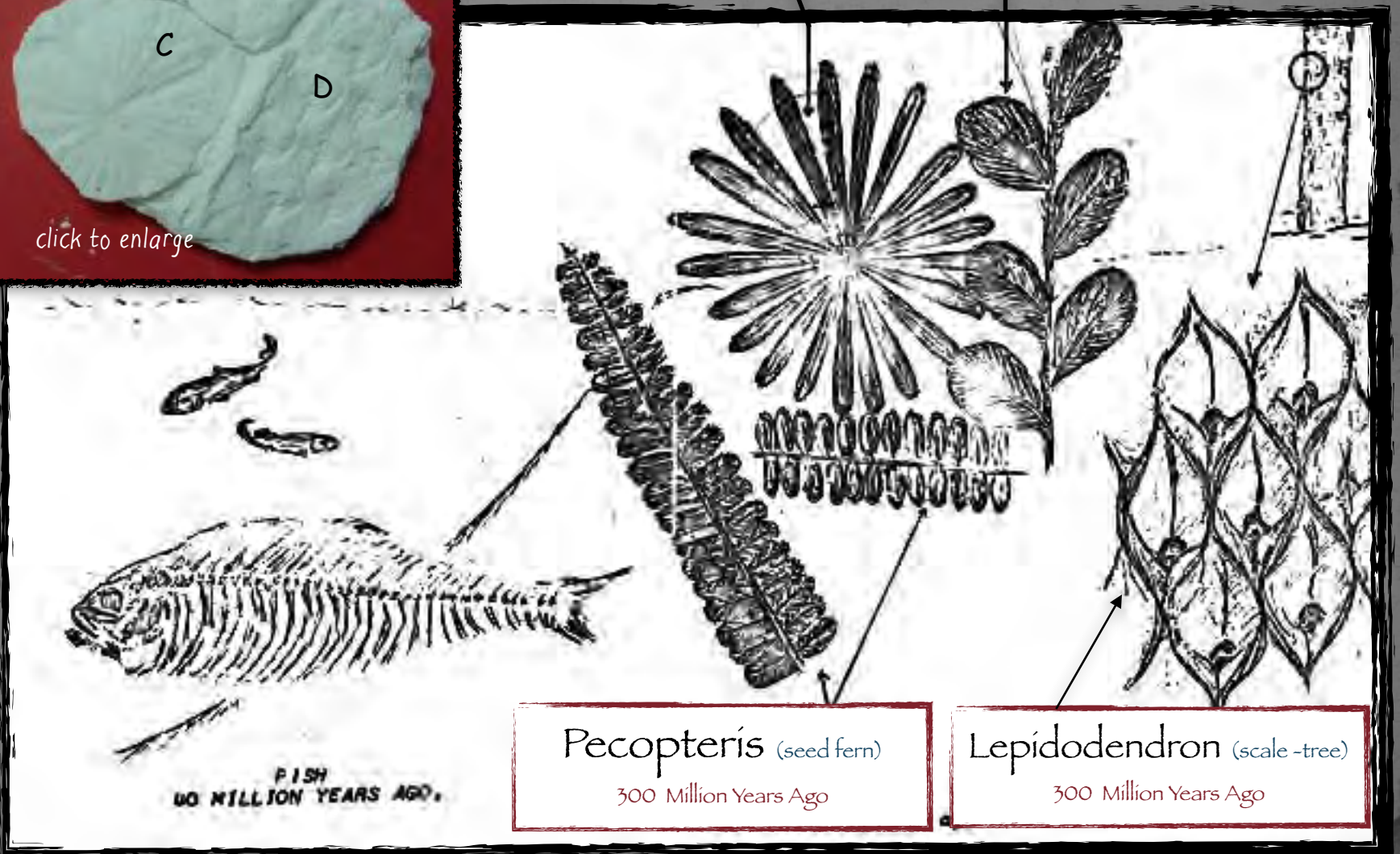
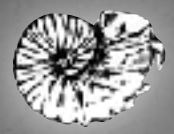
RETURN TO STATION 15



Acanthoscaphites
(Ammonite Cephalopod)



Cretaceous

Carcharodon
(Shark Tooth)

Tertiary - Miocene

Eospirifer radiatus
(Brachiopod)

Silurian

Pecten jeffersonius
(Scallop)

Tertiary - Quaternary

Pentremites
(Echinoderm)

Mississippian

RETURN TO STATION 16

Flexicalymene meeki
(Trilobite)

Silurian

Meekoceras gracilitatis
(Ammonite Cephalopod)

Triassic

Michelinoceras sociale
(Cephalopod)

Ordovician

Merychippus
(Horse tooth)

Tertiary - Miocene

Click to enlarge

Munsteroceras parallelum
(Ammonite Cephalopod)

Mississippian

Neospirifer triplicatus
(Brachiopod)

Pennsylvanian

Oleneothyris harlani
(Brachiopod)

Cretaceous

Equus
(Horse Tooth)

Quaternary

Phacops rana
(Trilobite)

Devonian

Spirifer pellaensis
(Brachiopod)

Mississippian

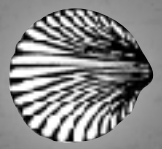
Tetragramma agassizi
(Sea Urchin)

Cretaceous

Turritella alticostata
(Snail)

Tertiary

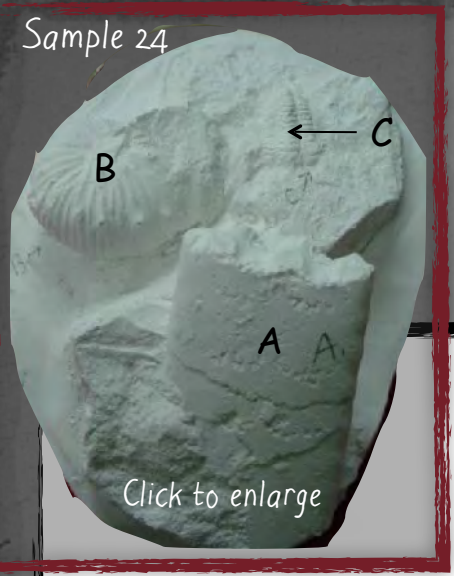
Venericardia robustus
(Clam)



Tertiary

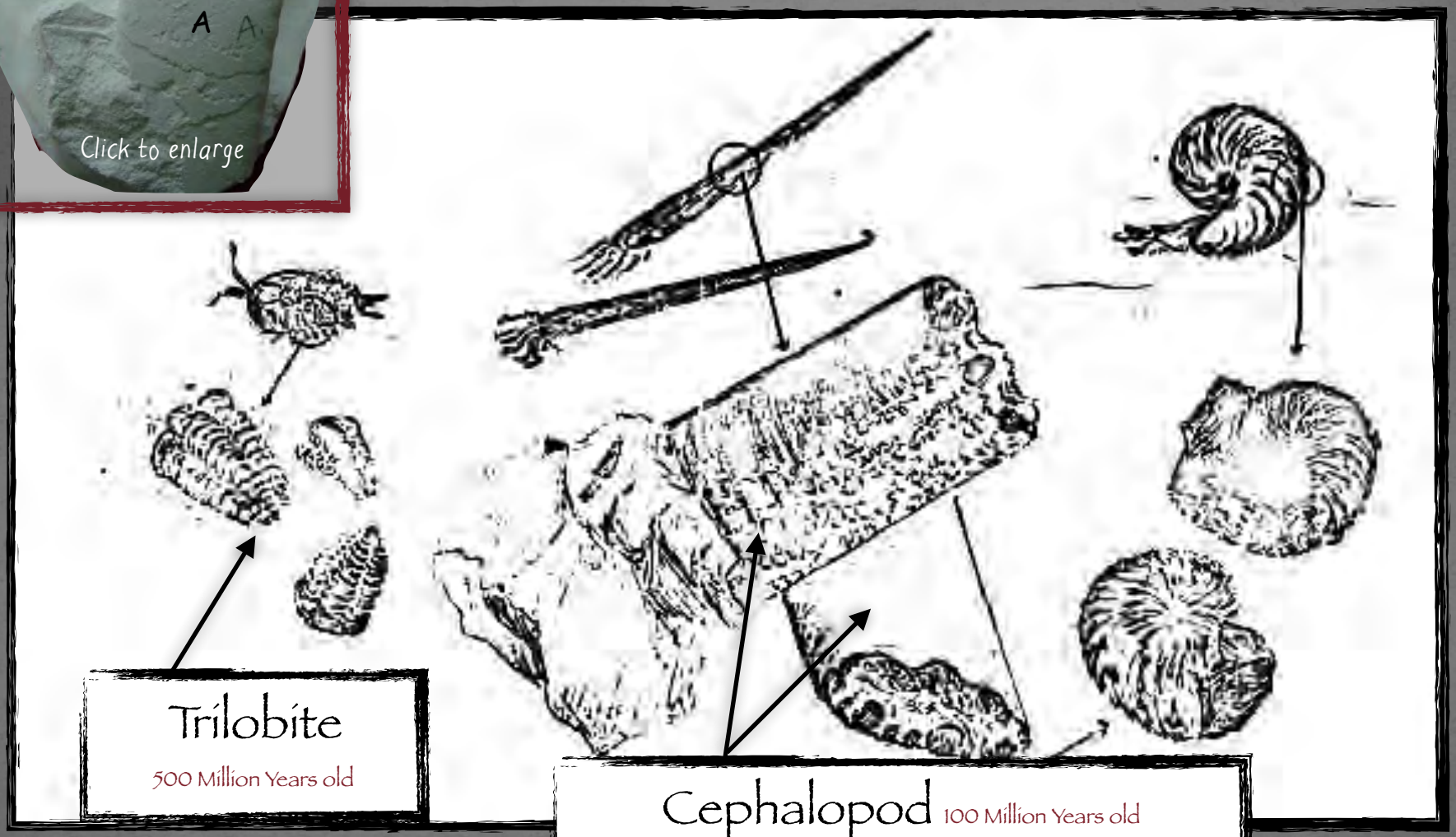
Crinoid
("sea lilly")

Mississippian

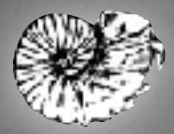


Return to Index

RETURN TO STATION 17



Acanthoscaphites
(Ammonite Cephalopod)



Cretaceous

Carcharodon
(Shark Tooth)

Tertiary - Miocene

Eospirifer radiatus
(Brachiopod)

Silurian

Pecten jeffersonius
(Scallop)

Tertiary - Quaternary

Pentremites
(Echinoderm)

Mississippian

RETURN TO STATION 18

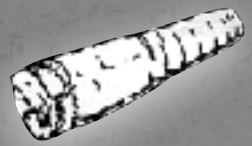
Flexicalymene meeki
(Trilobite)

Silurian

Meekoceras gracilitatis
(Ammonite Cephalopod)

Triassic

Michelinoceras sociale
(Cephalopod)



Ordovician

Merychippus
(Horse tooth)

Tertiary - Miocene

Click to enlarge

Click to enlarge

Munsteroceras parallelum
(Ammonite Cephalopod)

Mississippian

Neospirifer triplicatus
(Brachiopod)

Pennsylvanian

Oleneothyris harlani
(Brachiopod)

Cretaceous

Equus
(Horse Tooth)

Quaternary

Phacops rana
(Trilobite)

Devonian

Spirifer pellaensis
(Brachiopod)

Mississippian

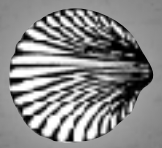
Tetragramma agassizi
(Sea Urchin)

Cretaceous

Turritella alticostata
(Snail)

Tertiary

Venericardia robustus
(Clam)



Tertiary

Crinoid
("sea lilly")

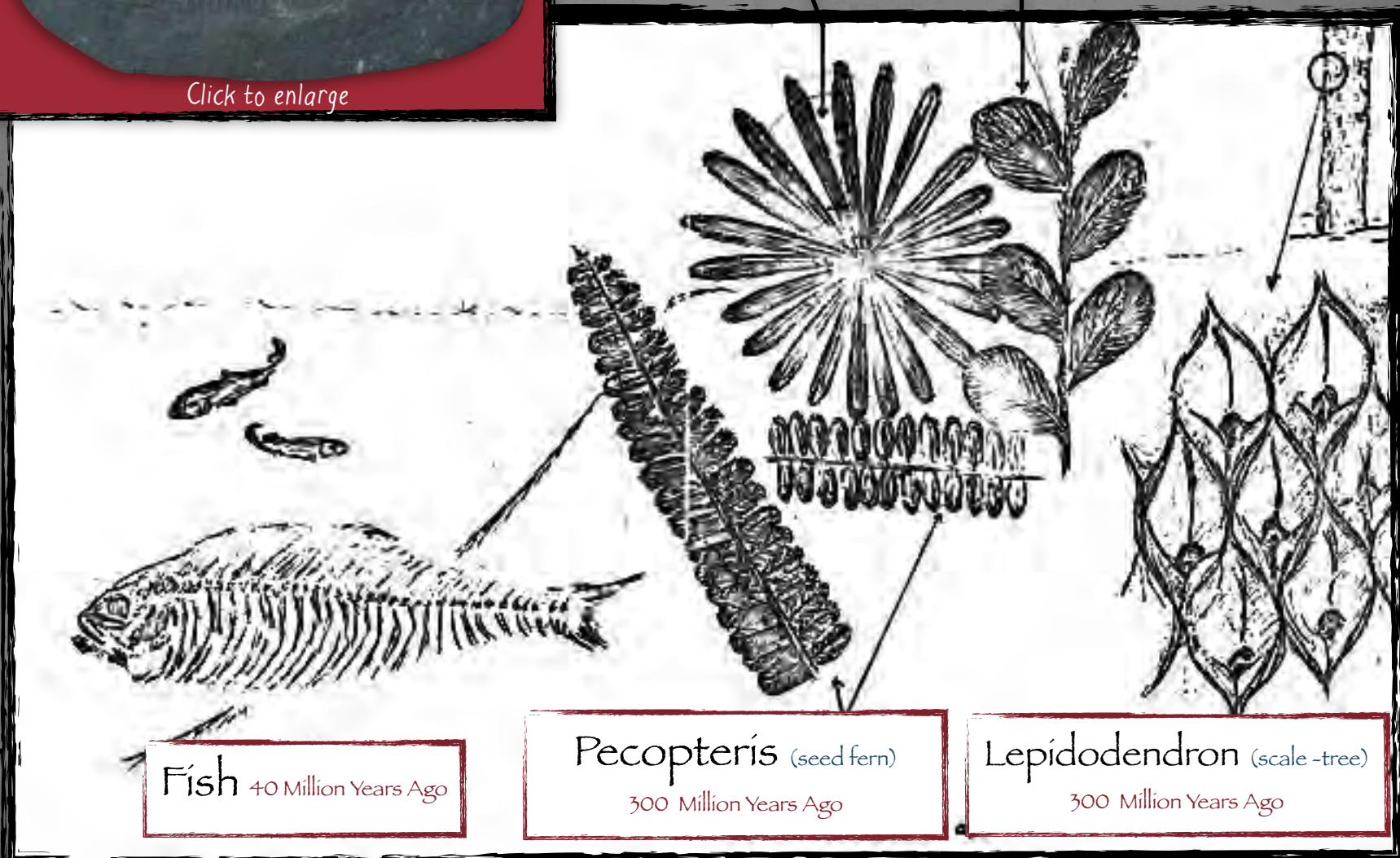
Mississippian

Sample 28

Click to enlarge

Return to Index

RETURN TO STATION 19



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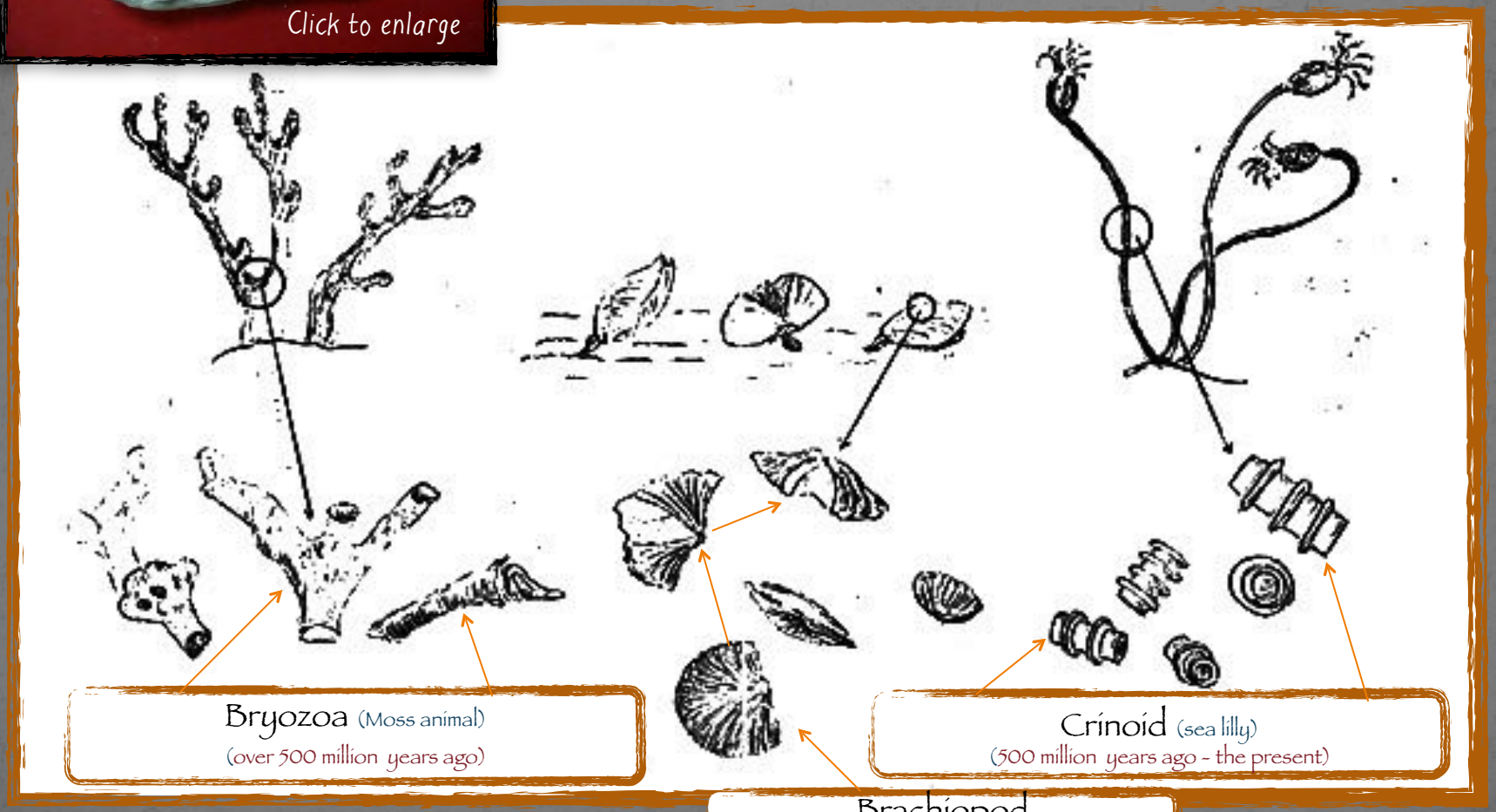
RETURN TO STATION 20



Acanthoscaphites
(Ammonite Cephalopod)

Cretaceous

Carcharodon
(Shark Tooth)

Tertiary - Miocene

Eospirifer radiatus
(Brachiopod)

Silurian

Pecten jeffersonius
(Scallop)

Tertiary - Quaternary

RETURN TO STATION 21

Flexicalymene meeki
(Trilobite)

Silurian

Meekoceras gracilitatis
(Ammonite Cephalopod)

Triassic

Michelinoceras sociale
(Cephalopod)

Ordovician

Pentremites
(Echinoderm)

Mississippian

Munsteroceras parallelum
(Ammonite Cephalopod)

Mississippian

Neospirifer triplicatus
(Brachiopod)

Pennsylvanian

Oleneothyris harlani
(Brachiopod)

Cretaceous

Merychippus
(Horse tooth)

Tertiary - Miocene

Equus
(Horse Tooth)

Quaternary

Phacops rana
(Trilobite)

Devonian

Spirifer pellaensis
(Brachiopod)

Mississippian

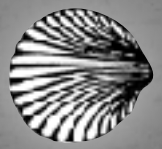
Tetragramma agassizi
(Sea Urchin)

Cretaceous

Turritella alticostata
(Snail)

Tertiary

Venericardia robustus
(Clam)



Tertiary

Crinoid
("sea lilly")

Mississippian

Sample 31

Click to enlarge

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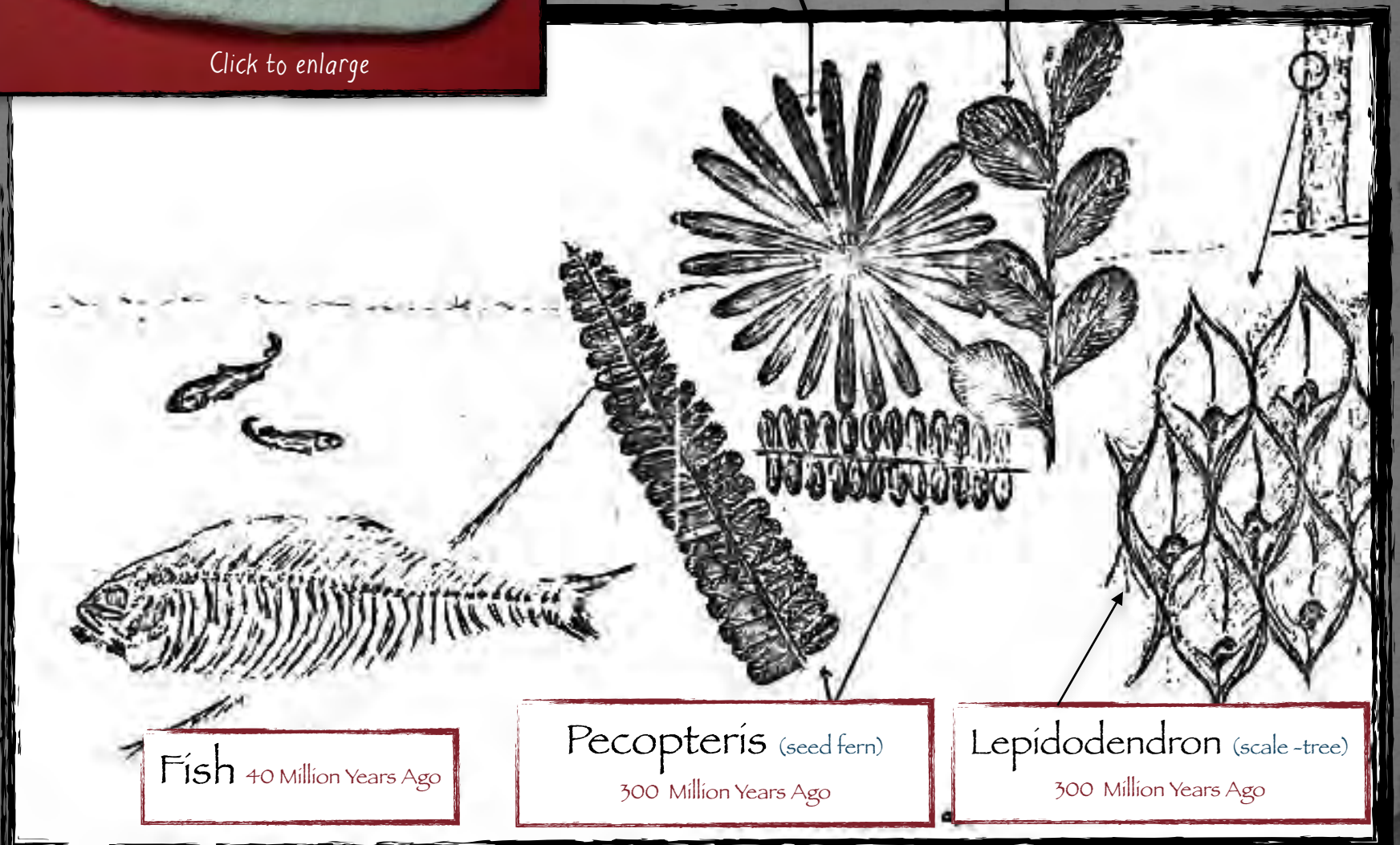
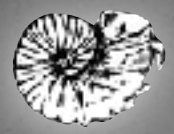
RETURN TO STATION 22



Acanthoscaphites
(Ammonite Cephalopod)



Cretaceous

Carcharodon
(Shark Tooth)

Tertiary - Miocene

Eospirifer radiatus
(Brachiopod)

Silurian

Pecten jeffersonius
(Scallop)

Tertiary - Quaternary

Pentremites
(Echinoderm)

Mississippian

RETURN TO STATION 23

Flexicalymene meeki
(Trilobite)

Silurian

Meekoceras gracilitatis
(Ammonite Cephalopod)

Triassic

Michelinoceras sociale
(Cephalopod)

Ordovician

Munsteroceras parallelum
(Ammonite Cephalopod)

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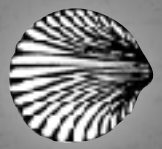
Turritella alticostata
(Snail)

Tertiary

Venericardia robustus
(Clam)



Tertiary

Crinoid
("sea lilly")

Mississippian

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RETURN TO STATION 24

Anthozoa (Horn Coral)
(over 400 million years ago)

Bryozoa (Moss animal)
(over 500 million years ago)

Gastropod (Snail)
(65 million years ago)

What is a Fossil?

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Fossils are evidence of ancient life (plant or animal) that have been preserved by natural processes. This evidence may show the size and shape of the plant or animal or it may show other evidence of it's existence such as footprints, habitats (worm tunnels, etc), or even fossilized excrement (that's right, poop). Fossilization is rare; conditions have to be just right in order for a fossil to form. Because of this, most plants or animals do not become fossilized. Instead, they are eaten by animals or decayed away by bacteria. Even if they do become fossilized, most fossils are never found and are eventually destroyed by erosion.

What fossils teach us

Diversity of Life: Fossils help us understand the variety of life and Earth and how it has changed over time . We can also learn how ancient animals lived, what they ate, and even how they behaved.

Correlating Layers of the Earth: Geologists use fossils to match layers of rock in different locations by age based on how similar the fossils in each rock layer are. This information can be used to help understand when different layers of rock were formed even when large distances separate them. From this we can better understand the physical events of Earth's past (Continental Drift, formation of mountains, etc.).

Environmental Changes: Fossils help us understand how the Earth has changed over time. The type of fossil found in a particular location tells us what kind of environment existed when the fossil was formed. If you find a fossil of a fish in the rock layers of your backyard, you know that there must have once been an ocean where your house now stands!

Finding Coal, Oil, and Natural Gas: Reserves of "fossil fuels" can be found in rock of a certain age. Specific fossils are also found in the same rock. Locating these special fossils helps geologists find oil and other natural resources.

Types of Fossilization page 1

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Fossils can form in a variety of ways depending upon the type of organism and the conditions at the time of fossilization.

Unaltered Hard Parts: Sometimes the actual remains of a plant or animal become preserved. These are often called sub-fossils.

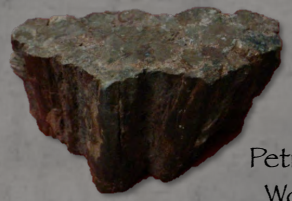
- organism is buried in soft sediment, tar, amber (tree sap), or frozen in the ice
- sediments surrounding the organism are compacted
- the soft parts decay if buried in sediment (soft parts main remain intact if trapped in amber or frozen in the ice)
- hard parts (shell, bones) remain unaltered

Gastropod

Pelecypod

Permineralization (petrification): Under certain circumstances, a bone, a tree or other porous material may be "turned to stone".

- the bone or tree is buried in sediment (mudslide, flash flood, or soft sediments)
- water comes into contact with the buried bone or tree
- minerals are deposited in the pores of the bone or tree
- the bone or tree dissolves but the minerals harden and remain
- the mineral takes the shape of the original bone or tree (petrified wood)



Petrified Wood

Permineralized Bone

Replacement: Similar to permineralization but usually takes place with marine invertebrates

- an organism is buried in sediment (soft river, lake or ocean sediments)
- water dissolves some or all of the hard parts (the shell)
- minerals take the place of the shell
- a fossil is formed that looks like the original organism but is made up entirely of mineral

Ammonites

Go to page 2 (click here)

Types of Fossilization page 2

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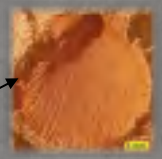
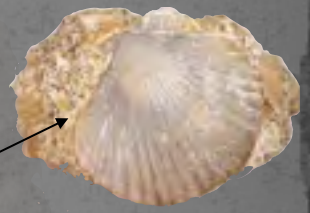
Fossils can form in a variety of ways depending upon the type of organism and the conditions at the time of fossilization.

Mold / Casts: Some fossils are formed when the original organism leaves an impression of itself in sediment that gets filled with mineral.

- an organism is buried in soft sediment
- the sediment compacts and hardens around the organism
- water passes through the sediment and completely dissolves the organism
- a hole is left in the sediment which has the shape and features of the organism . This is the mold.
- the mold gets filled with minerals which harden to form a fossil that looks just like the original organism. This is the cast.





Carbonization: When plants decay, they sometimes leave a carbon imprint in the rock.

- a plant is covered by sediment
- the carbohydrates that make up the plant disperse (they leave the plant)
- all that remains of the plant is a black film of carbon which forms a print of the original plant on the sedimentary rock

Carbon Imprint

Trace Fossils: Evidence of an organisms existence other than its actual shape and appearance are called trace fossils. These include fossil footprints, dwellings (burrows, nests, etc.), and even fossilized poop (coprolites). Although trace fossils can be formed in a variety of ways depending upon what is being fossilized, the description below focuses on fossilized footprints.

- a footprint is left in soft sediment
- the sediment is hardens into rock before the footprint can be washed away
- the footprint remains intact even if sediment is deposited on top of it

Coprolite

Dinosaur Footprint

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Index Fossils

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Index Fossils are the remains of life forms which existed during limited periods of Geologic time. They are a useful guide in determining the age of rock formations from which they are found.

Index Fossil

Index Fossils must be:

- Distinctive - easily recognizable to make identification quick and reliable.
- Widespread - they flourished over large Geographic areas.
- Abundant - their fossil remains are easily found due to their large numbers.
- Limited in Geologic Time - they define the period of Earth's history in which they lived.

Examples:

Bellemnite

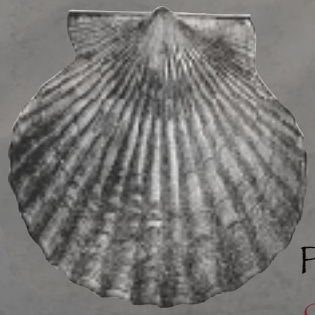
Mesozoic

Mucrospirifer

Middle Devonian

Ammonite

Mesozoic

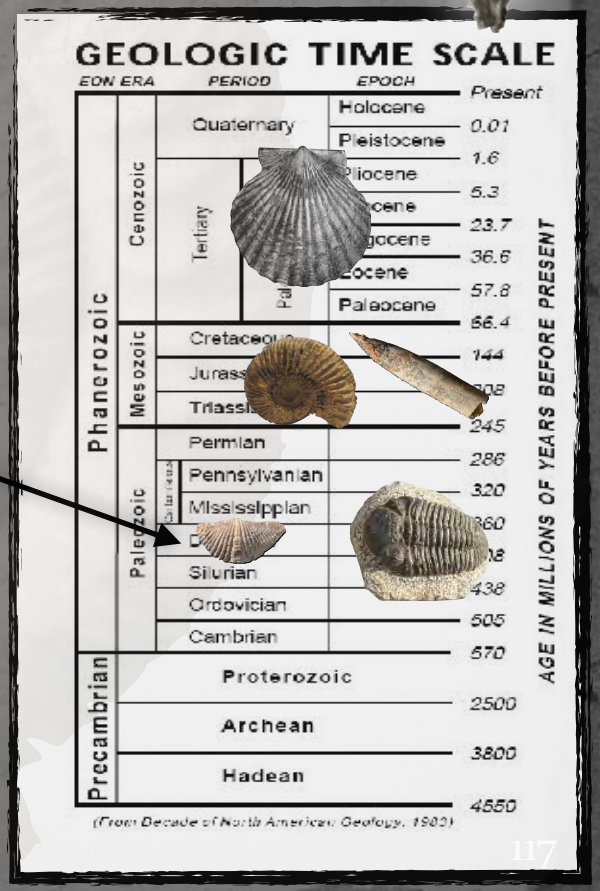


Pecten

Cenozoic

Trilobite

Paleozoic



Activities:

These activities go with the fossil lab and are included as separate PDF documents in your original product purchase of the Fossil Lab.

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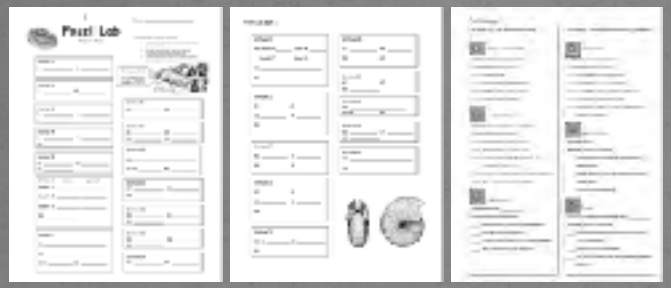
Fossil Lab Student Answer Sheet:

The Fossil Lab Answer Sheet is available from your teacher.



Index Fossils Activity:

In this activity , students examine fossil images found in the Fossil Lab and place them in the correct time period on a chart of Geologic Time. Students then draw conclusions about each particular index fossil and what they tell us about the rock layers in which they formed. Ask your teacher for a copy.

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