CRETACEOUS ALBERTA

1. This exhibit is based on a discovery made in _____
2. What type of dinosaur was found at this site and how many individuals were there?

   _____
3. How did the dinosaur bones end up in a bonebed? _____

   _____

FOUNDATIONS

1. What is evolution?

   A A process by which seeds grow in to plants
   B Changes in the genetic information between generations of a species
   C Changes in climate over time
   D A delicious dessert that can be found at most bakeries

2. To be considered a living organism, something must have which of the following characteristics (circle all that apply)?

   A Composed of one or more cells
   B Able to move freely
   C Respond to stimuli (light, sound, touch, etc.)
   D Able to reproduce

3. The study of how burial, preservation and modification effect fossilization is called?

   A Taxidermy
   B Typology
   C Taphonomy
   D Fossilology

4. What can be found in the Late Cretaceous Scollard Formation near Trochu, Alberta?

   A P/Tr boundary
   B C/Pg boundary
   C O/S boundary
   D K/Pg boundary

5. Fill in the blank boxes in the chart.

ERAS	**PERIODS**	**AGE** (Years Ago)
CENOZOIC	Quaternary	2.6 million to Present
		23 – 2.6 million
		66 – 23 million
		145 – 66 million
		201 – 145 million
		252 – 201 million
	Permian	299 – 252 million
	Carboniferous	359 – 299 million
		419 – 359 million
		444 – 419 million
	Ordovician	485 – 444 million
	Cambrian	541 – 485 million
PRECAMBRIAN		4.6 billion years to 541 million years

CONTINUE UP THE RAMP AND PROCEED TO THE RIGHT, THROUGH THE TIME TUNNEL.

THE BURGESS SHALE

The information for this section is found in writing before the Burgess Shale glass floor and in the study hall just beyond the glass floor. Some answers are repeated during the recording in the glass-floored area.

1. Match the definition on the left by writing its letter beside the correct answer on the right.

DEFINITIONS		TERMS
A	The Burgess Shale has yielded more than this number of fossils.	___ *Priapulida*
B	The Burgess Shale creatures are enlarged this many times.	___ Molting
C	The animals lived in shallow seas during the Cambrian Period, this many years ago.	___ *Hallucigenia*
D	This was a member of our own phylum because it had a stiff rod down its back.	___ The Canadian Rockies
E	This was the largest predator in the Burgess Shale.	___ *Pikaia*
F	This animal had the head of an insect and the body of a fish.	___ *Marrella*
G	The Burgess Shale is a layer of rock high in these mountains.	___ *Anomalocaris*
H	This person found the first fossils of the Burgess Shale.	___ Twelve (12)
I	This is the term for shedding an external skeleton.	___ 505 million
J	He was the author of *Wonderful Life - The Burgess Shale and the Nature of History.*	___ 200,000
K	This is the most common Burgess Shale creature with feathery legs.	___ *Nectocaris*
L	These were carnivorous worms armed with spines and hooks on a retractable snout.	___ Charles D. Walcott
M	Armed with protective spines on its back, early studies misinterpreted this animal's spines as stilt-like walking legs.	___ Stephen J. Gould

PROCEED TO THE DEVONIAN REEF EXHIBIT

PALAEOZOIC ERA

1. What Alberta resource is locked in rock layers accumulated 375 - 365 million years ago?

_____

2. What material was the resource trapped in? _____

GO DOWN THE SPIRAL STAIRCASE

3. What was the major shift for life during the Palaeozoic Era? _____

4. What progressed first onto land?

A plants
B amphibians
C insects

5. What plant fossil is the first evidence of life on land? _____

6. In what three ways did vascular plants change during the Early Carboniferous?

_____

7. What group of animals were the first to colonize land? _____

8. Name two examples from this group. _____

9. During which period does our fossil evidence indicate that animals first lived on land?

_____

10. Why are insects considered to be a very successful group?

_____

_____

11. The first vertebrates, or animals with backbones, that lived partially on land were

A amphibians
B insects
C reptiles

PALAEOZOIC ERA continued

12. Fill out the following table about early vertebrates that lived on land:

	Animal	Description of egg shell	Reproductive area
First		*soft/permeable*	
Second			*land*

13. During what period did reptiles begin to overshadow amphibians? _____

14. What reptile lived during this period, had a large sail on its back, and is often mistaken for a dinosaur? _____

MESOZOIC ERA—TRIASSIC GIANT

1. What is the name of the specimen on display in this gallery and how large is it?

_____

2. How long did it take to prepare the skeleton once it was brought to the Royal Tyrrell Museum? _____

3. What is the significance of this specimen? _____

_____

CRETACEOUS GARDEN

1. The plants in the Cretaceous Garden are representative of plants that lived in Alberta how many millions of years ago? _____

2. Describe the climate at the end of the Cretaceous in Alberta? _____

3. A living fossil is an organism thought once to have gone extinct but found still living (extant) on Earth. There are two examples in the Cretaceous Garden, what are they?

_____

DINOSAUR HALL

1. Name three dinosaurs on display that lived during the Jurassic Period.

_____

2. Which two dinosaurs are shown in a Late Cretaceous confrontation?

_____

3. Ceratopsians (horned dinosaurs) originated in_____during the middle to late Jurassic Period, about _____ million years ago.

4. What are some theories as to the primary role of ceratopsian frills and horns?

_____

_____

5. Which ceratopsian on display is named after a Museum palaeontologist, and where was it discovered? _____

_____

6. Ceratopsian dinosaurs are divided into two groups based on differences in the frill and the facial horns. Name the two groups and list one example from each group.

_____

_____

_____

_____

7. What is the scientific name for the group of dinosaurs commonly known as "raptors"?

_____

8. Scientists group duckbill dinosaurs into two subfamilies based on skull features. What are these subfamilies? _____

_____

9. During the Late Cretaceous, the interior of North America was covered by a shallow inland waterway. What was it called and how far did it extend? _____

_____

10. Name three types of animals that lived in this aquatic environment?

_____

PROCEED TO THE DEVONIAN REEF EXHIBIT

EXTINCTION THEATRE

1. How large was the asteroid believed to have crashed into the Yucatan Peninsula at the end of the Cretaceous? _____

2. What could have been some of the resulting problems from the asteroid impact?

_____

3. Describe the difference between Gradualistic and Catastrophic theories of extinction.

_____

_____

MAMMAL HALL

1. What is the name and the age of the first period of the Cenozoic Era?

_____

2. Fill in the following table:

Type of Mammal	Characteristics of Offspring	Example
Monotremes		
	Live	
		kangaroo or opposum

3. List three uses for horns. _____

_____

4. How did the grass-eating mammals adapt to open grassland?

_____

5. What are the names of the two groups of grass-eaters? Give an example for each.

_____

_____

6. Name a tiny fossil thermometer and explain how it is used to demonstrate climate change through geologic time. _____

_____

_____

ICE AGES

1. During the Pleistocene, the sea level was low, exposing the sea floor between Alaska and Siberia. Why was this, and how did it affect the animals? _____

_____

_____

2. Which new predator to North America may have caused the extinction of many large Pleistocene mammals? _____

_____

_____

3. The cause of the Great Extinction at the end of the last ice age is still uncertain. State the four questions we still have about the disappearance of ice age mammals.

1. _____

_____

2. _____

_____

3. _____

4. _____

4. In general, how do modern animals compare in size to Pleistocene animals?

_____

5. What is the only constant of life on Earth? _____