

# Exam 3 Review Topics (i.e. highlights)

## Chapter 10 Dino World

Changing Sea Levels

Crustal Collisions

Continental Movement - controls ocean circulation

Sea Level High (transgression):

- Continents greater warmth and humidity
- Ocean water stores heat from sun (1 cal/gm)
- Greenhouse climate results

Sea Level low (regression):

- Continents lesser warmth and humidity
- Drier and more temperate
- Icehouse? climate results

Each interval of Earth's History - Specific plate configuration therefore own specific climate

Triassic: Relatively dry and strongly seasonal

Jurassic: Wetter and more equable

Cretaceous: Global greenhouse climate

Pangea

Gondwana

Laurasia

Late Triassic

- Few mts. and mts.
- No glaciers or cold
- Snowy winters
- Monsoonal
- Monsoonal - two seasons (one very wet the other dry)
- Abundant rainfall in the summer months
- Little annual temperature fluctuations
- Large land masses just north and south of the equator

- Northern Hemi. - relatively hot; Southern Hemi. - relatively cool, reversed throughout the year, hemisphere-wide wet and dry seasons.
- Oceans warm and shallow
- Clams and snails very abundant Ammonoid Cephalopods Sharks, heavily scaled bony fish Plesiosaurs Ichthyosaurs

Plants different than present-day

- Gymnosperms - exposed seeds
- Angiosperms - flowering plants

### **Early to Middle Jurassic**

- Vast deserts (west US)
- Dominated by footprints
- Lack of exploration
- Fossil record incomplete
- Dinos most successful group
- Monsoonal - still present
- Highly arid climates in parts of Pangea Western US covered by sand sea
- Dinos and other Verts:
- Dinos dominate
- Large amphibians disappear
- Dinos are the large beasts
- Smaller animals - mammals, pterosaurs, turtles, crocks

### **Late Jurassic**

- **Extensive fossil record of dinos and other beasts**
- **Largest dinos that ever lived (largest land animals ever)**
- **wide geographic range**
- **variety**
- **abundance**
- Epicontinental sea
- Climates: Monsoonal still present, Global air circulation, starting to change
- Warmer and wetter
- Dinos and other Verts: Huge sauropods, stegosaurids, ornithopods, Allosaurids
- Everything else very small

Early Cretaceous: Transition

- Gondwana fragments
- Atlantic Ocean forms

- Warmer and wetter
- Greenhouse climate

- Warm, equitable and ice free
- Pole to pole gradient
- 20 deg - present 41 deg.

Middle to late Cretaceous

- Worldwide sea level
- continues to rise
- End K sea level falls
- Separated into continents
- Significant split of NA
- SL all time high (Mesozoic)
- Greenhouse climate
- Topical zones 45 N to 70S
- "wall to wall" Jamaica

Veggies - flowering plants

- replace gymnosperms
- rapid diversification

**TABLE 10.1 THE FIVE DINOSAUR FAUNAS**

	Fauna	Theropoda	Sauropodomorpha	Ornithopoda	Thyreophora	Marginocephalia
Cretaceous	Late	5 Carnosauria: (Tyrannosauridae) Coelurosauria: (Ornithomimosauridae) (Dromaeosauridae) (Oviraptorosauridae)		Hadrosauridae	Ankylosauria: Ankylosauridae	Neoceratopsians: Protoceratopsidae Ceratopsidae Pachycephalosauria
	Early	4	Sauropoda: Small Sauropods (Titanosaurids)	Large Ornithopods: Iguanodontidae	Ankylosauria: Nodosauridae Stegosauria: A few Stegosaurids	Psittacosaur
Jurassic	Late	3 Carnosauria: (Allosauridae)	Sauropoda: Large Sauropods	Medium Ornithopods: Hypsilophodontidae Iguanodontidae	Stegosauria: Large Stegosaurids	
	Early	2	Sauropoda: Small Sauropods (Cetiosaurids)	Small Ornithopods: Hypsilophodontidae	Stegosauria: Small Stegosaurids  Primitive Thyreophorans	
Triassic	Late	1 Ceratosauria Also Primitive Saurischians	Prosauropods	Primitive Ornithischians		