

# Turtle Evolution Timeline

Grade 3 – Science and Technology





## Lesson Details

<b>Grade Level:</b>	3	<b>Curriculum Links:</b>	Science and Technology, Mathematics	<b>Time Needed:</b>	30 minutes
<b>Learning Goal</b>	To learn about natural history, number lines, and integers, by plotting the evolution of turtles on a timeline.				
<b>Success Criteria</b>	By the end of this lesson, students will have developed an understanding of the concept of number lines and integers by plotting major historical events and the evolution of the turtle on a timeline.				
<b>Specific Expectations</b>	<p><i>Science and Technology – Understanding Life Systems: Growth and Changes in Plants</i></p> <ul style="list-style-type: none"> <li>• Use a variety of forms to communicate with different audiences and for a variety of purposes;</li> <li>• Identify examples of environmental conditions that may threaten plant and animal survival.</li> </ul> <p><i>Mathematics – Number Sense and Numeration</i></p> <ul style="list-style-type: none"> <li>• Demonstrate an understanding of magnitude by counting forward and backwards by various numbers and from various starting points.</li> </ul>				
<b>Materials Needed</b>	Turtle Timeline Print-Out Sheets (attached).				

## Lesson Description

<b>Overview</b>	Students will learn how turtles have evolved and changed to adapt to their changing environment through time. Students will also learn the concept of a timeline.
<b>Activity</b>	<ol style="list-style-type: none"> <li>1. Introduce the students to a timeline and discuss. What is it? What is it used for? Use the example of the generations in a family as a timeline: baby, mom, grandma, great grandma, etc.</li> <li>2. Next, explain the activity and distribute the Turtle Timeline Print-Out sheets, one to each student in no particular order. Students will be given a piece of paper with either a major life event (E.g. Fifth Mass Extinction) or an image of a turtle at one stage in their known evolutionary development.</li> <li>3. Students should then be instructed to order themselves with their pictures from oldest to newest occurrence in the timeline. Try allowing the students to figure this out themselves, but you may intervene if help is needed.</li> <li>4. After the timeline has been completed, have the students stand in place but look around to see where their piece of history fits into the timeline. Ask the students "How old are turtles compared to humans? Compared to the Earth?"</li> <li>5. Next, discuss how a species might be able to survive a natural disaster. And end the discussion by asking the students "What could cause the extinction of turtles in the future?"</li> <li>6. Note: if more timeline sheets are required for the number of students, you may find more historical life events to include.</li> </ol>
<b>Background Information</b>	Ancient is an appropriate word for turtles. According to some estimates, turtles are known to have been around for more than 220 million years. The word 'known' is often used to describe the evolution timeline of a turtle because there is no definitive answer as to how old turtles really are. First Nations call the Earth "Turtle Island". This is because turtles are as old as dinosaurs and are said to have witnessed Creation and the



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	Creation story of the Mitche Saagiig First Nations of Ontario says that the world was created on the turtle's back.
<b>Blacklist Masters</b>	<ul style="list-style-type: none"> <li>Turtle Timeline Print-Out Sheets (attached)</li> <li>Video Link(s): <a href="#">Threats to Ontario Turtles</a> and <a href="#">The Turtle Life Cycle</a></li> <li>For more information, please visit <a href="https://www.turtleguardians.com/sample-page/">https://www.turtleguardians.com/sample-page/</a></li> </ul>
<b>Place-Based Learning</b>	Students are encouraged to visit a local wildlife centre to learn more about the history of turtles and how they have evolved over time.
<b>Inquiry-Based Learning</b>	<p>Using <b>Guided Inquiry</b>, students will work together to complete the timeline of a turtles evolution throughout history.</p> <p>Ask the students:</p> <ul style="list-style-type: none"> <li>What is a timeline and what is it used for?</li> <li>How old are turtles compared to humans? Compared to the Earth?</li> <li>How do species survive natural disasters?</li> <li>What could cause the extinction of turtles in the future?</li> </ul>
<b>Turtle Stories</b>	Since turtles are so old and vulnerable, they need protecting. You can help by building a nest cage protector and placing it over a turtle nest. Students are encouraged to share their experiences and pictures on the Turtle Stories website, found here: <a href="https://www.turtlestories.ca/">https://www.turtlestories.ca/</a>
<b>Turtle Guardian Program Links</b>	After completing <b>Level 1</b> (Ontario Turtle Identification) of the <b>Turtle Guardian Program</b> , students can move onto <b>Level 2</b> (Wetland Watchers). In this level the students learn the importance of protecting, and how to protect turtle nests. They then can become official nest sitters (when accompanied by an adult) and learn how to build a nest cage protector. For more information, please visit <a href="https://www.turtleguardians.com/what-is-a-turtle-guardian/">https://www.turtleguardians.com/what-is-a-turtle-guardian/</a>

## My Notes





# **Formation of the Earth**

## **4.5 Billion Years Ago**





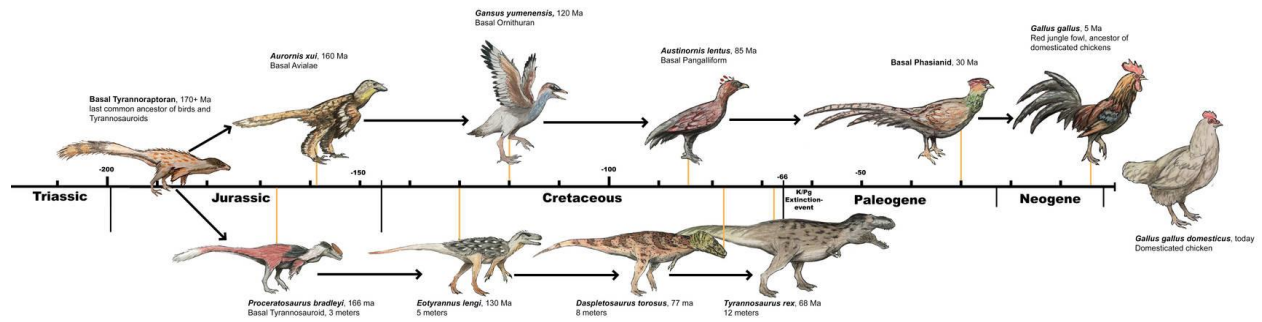


# **First Oceans Formed 4.4 Billion Years Ago**



Picture Credit: Scientific American

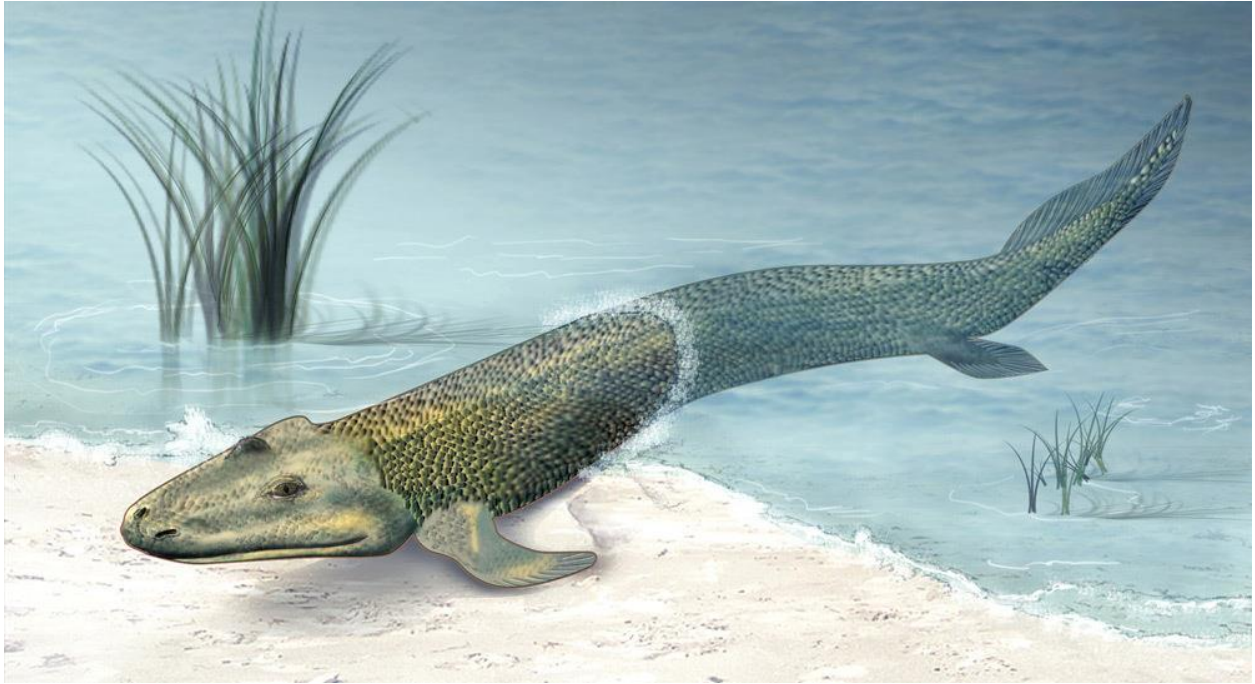




# First Animals Evolved 700 Million Years Ago





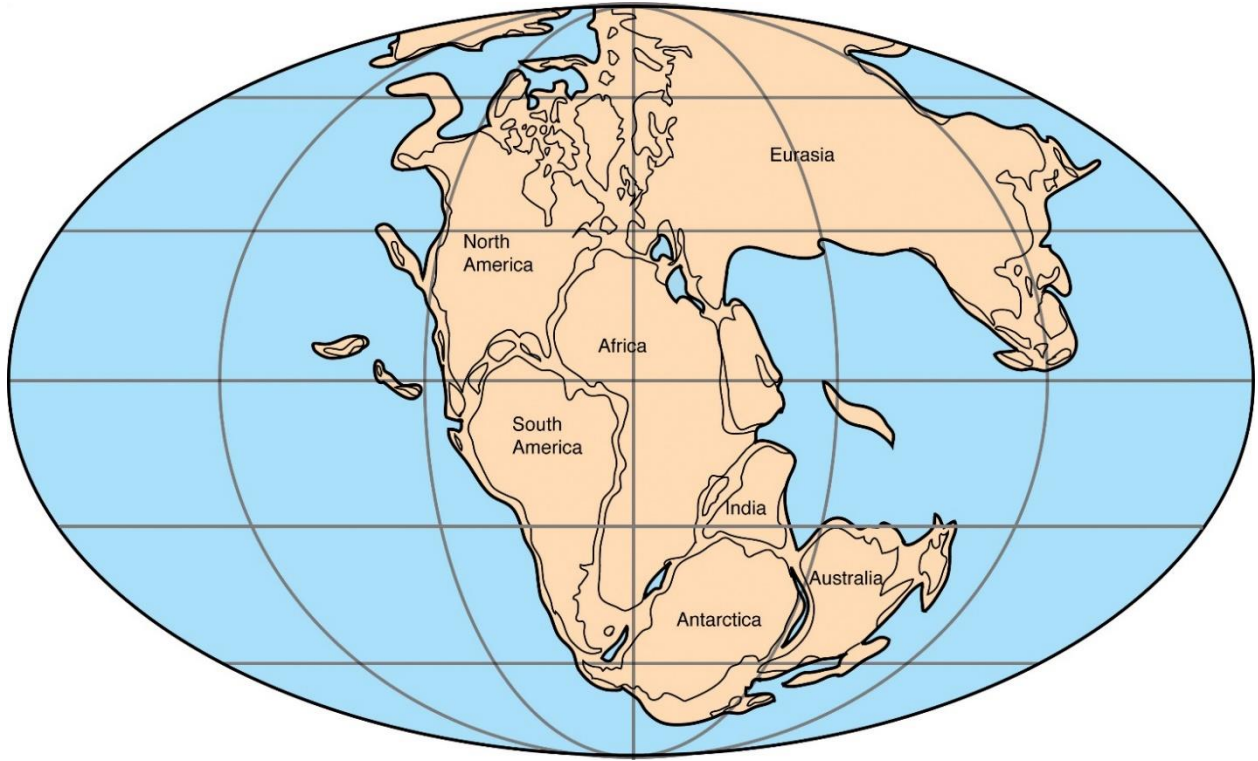


## **First Reptiles Evolved 320 Million Years Ago**



Picture Credit: National Public Radio

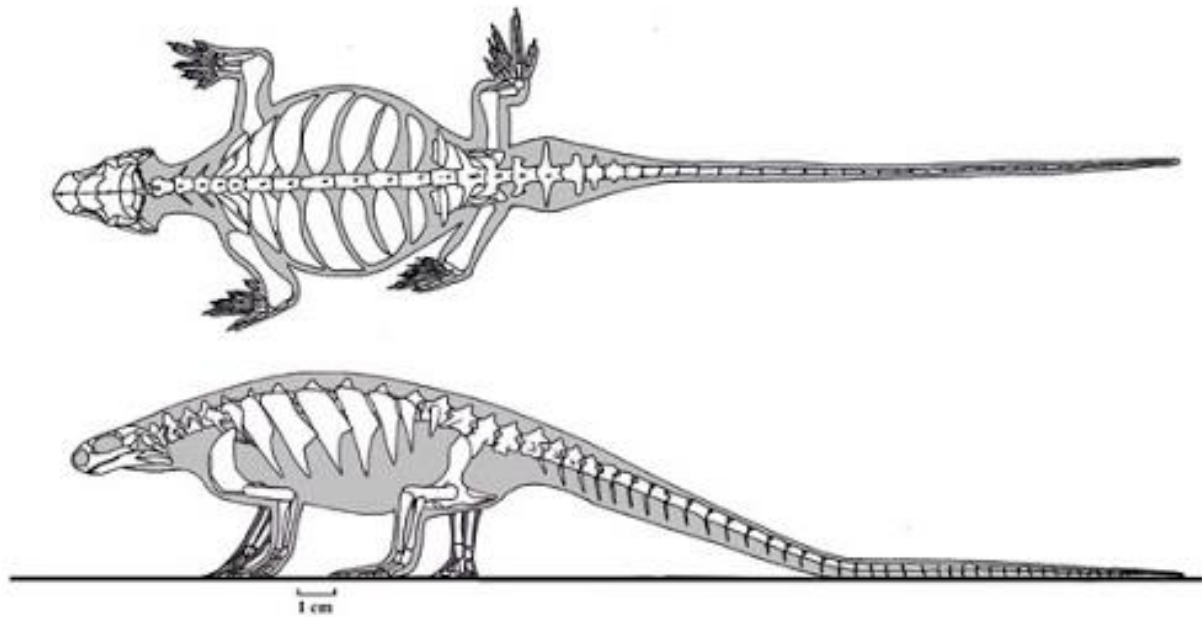




# **Pangaea Formed 300 Million Years Ago**







## **Eumeces Africanus**

### **260 Million Years Ago**



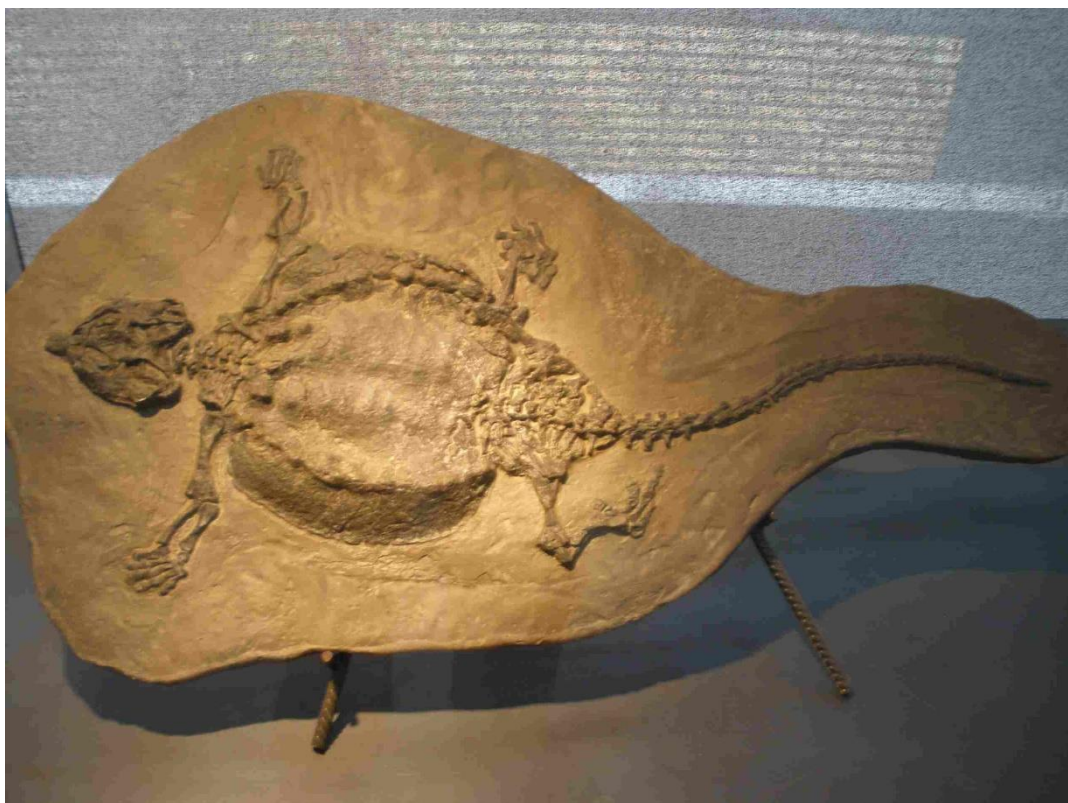




# Permian Extinction 252 Million Years Ago





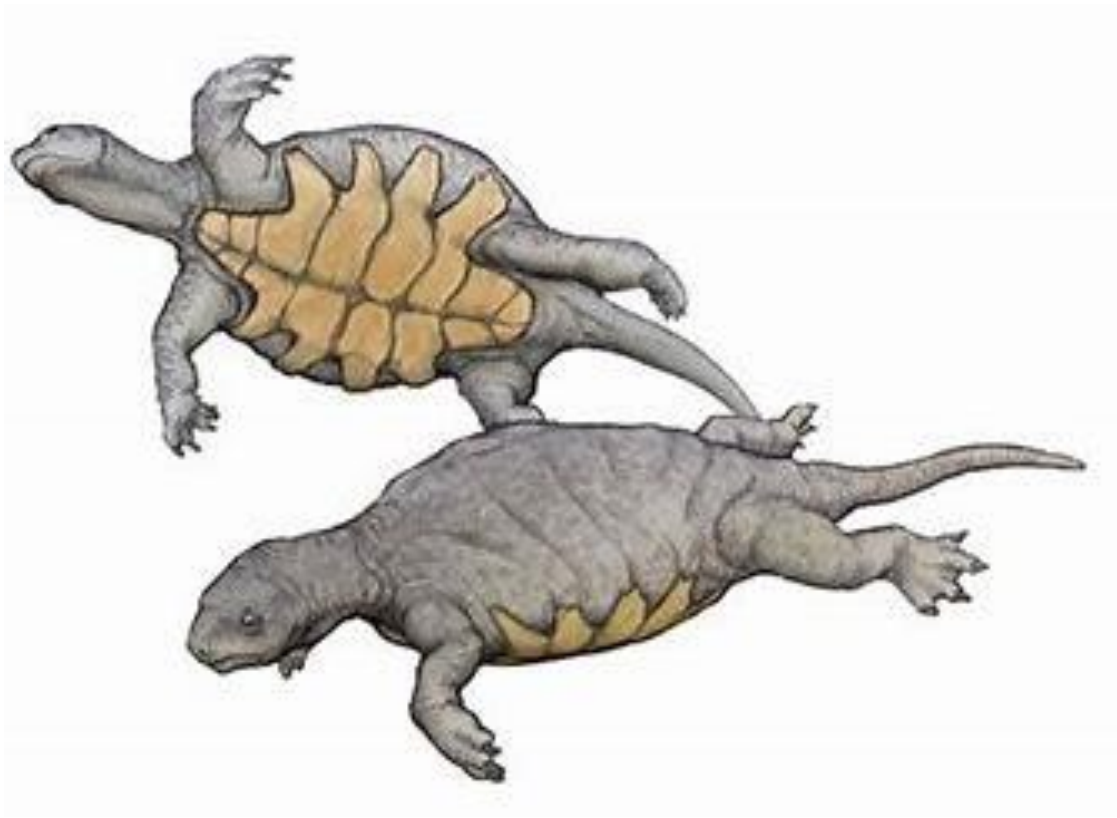


# **Cyamodis**

## **240 Million Years Ago**







# **Odontochelys Semitestacea**

## **220 Million Years Ago**







# **Proganochelys**

## **210 Million Years Ago**







# **Triassic Extinction**

## **201 Million Years Ago**



Picture Credit: Live Science

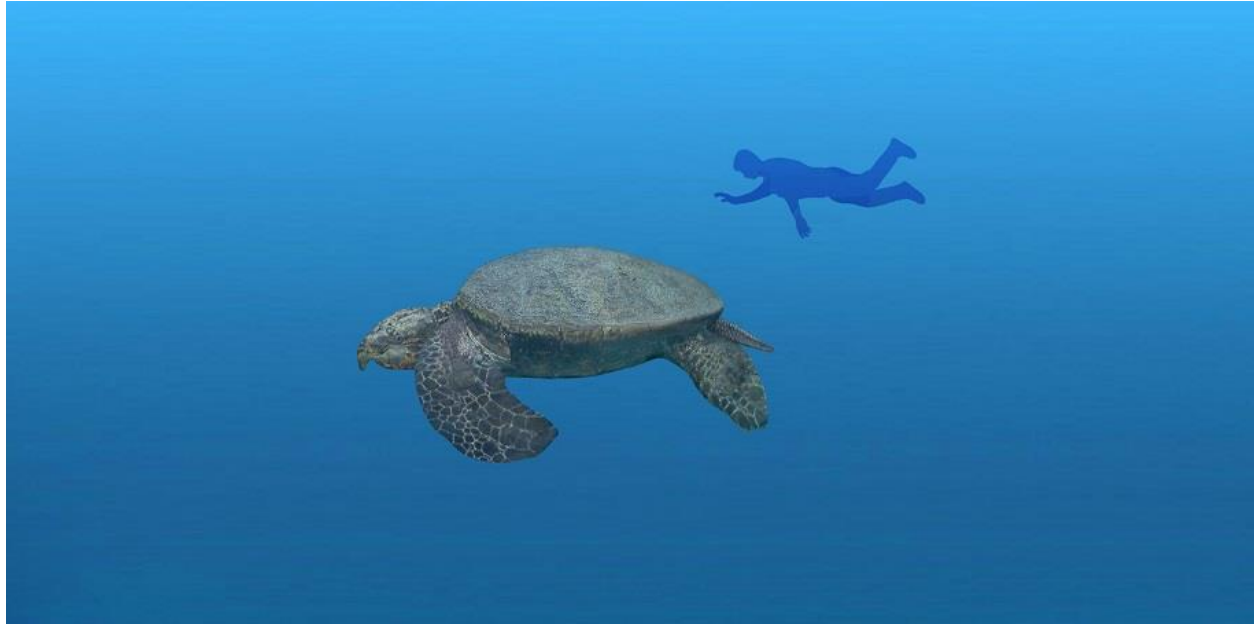




## **Kayentachelys Aprix 150 Million Years Ago**





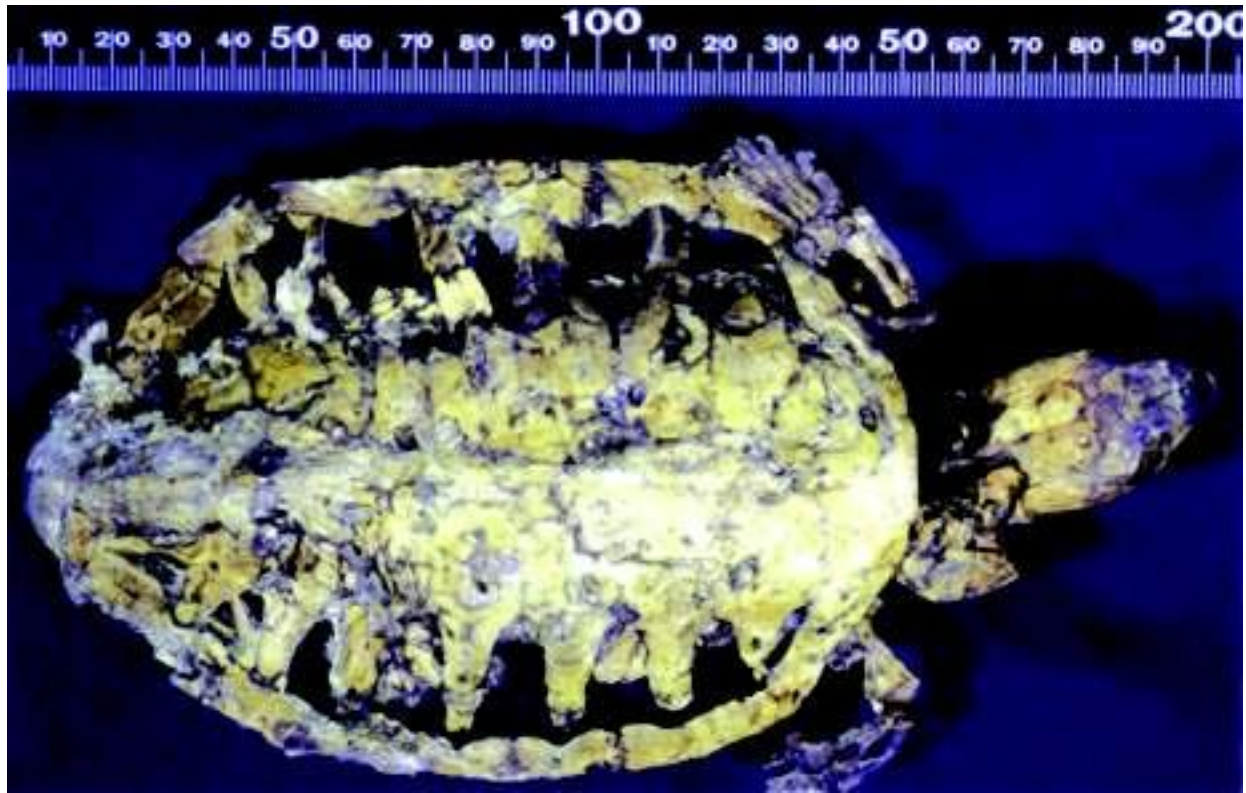


# Archelon

## 150 Million Years Ago





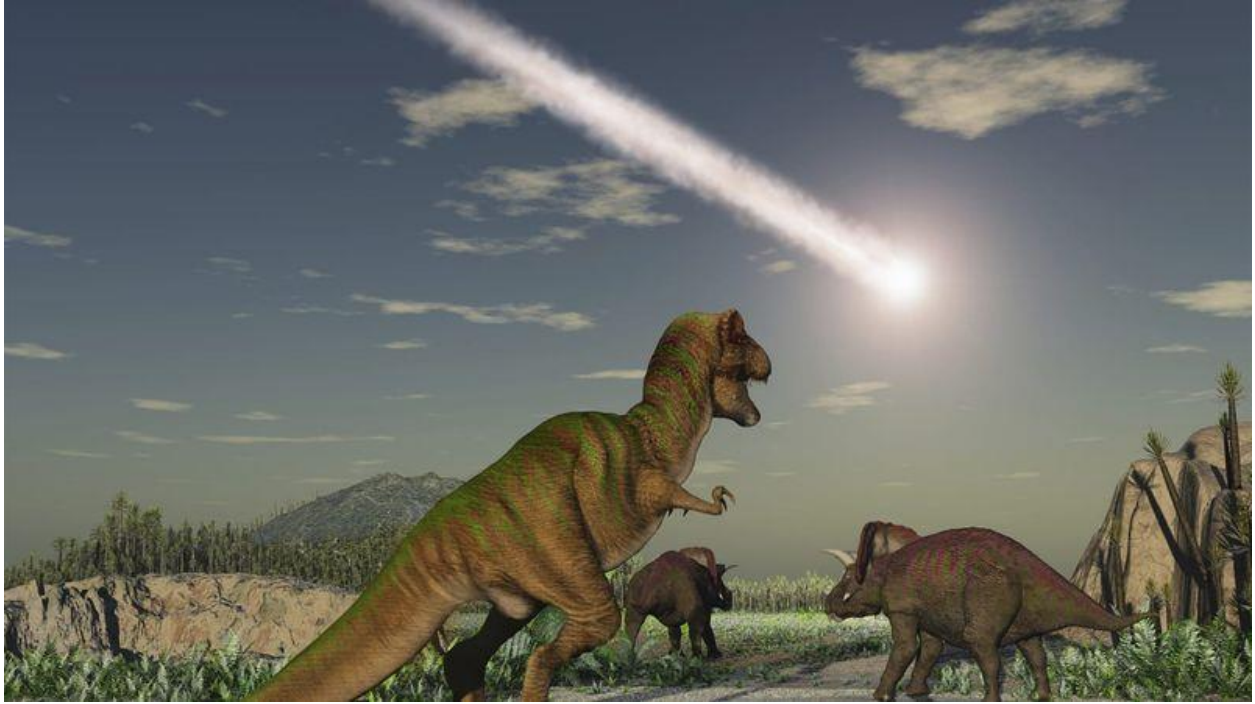


## **Santanachelys Gaffneyi**

### **100 Million Years Ago**







# **Fifth Mass Extinction 65 Million Years Ago**







# **First Primates Evolved 55 Million Years Ago**



Picture Credit: World Wildlife Fund





# **Stupendemys**

## **9 Million Years Ago**



Picture Credit: Earth Sky



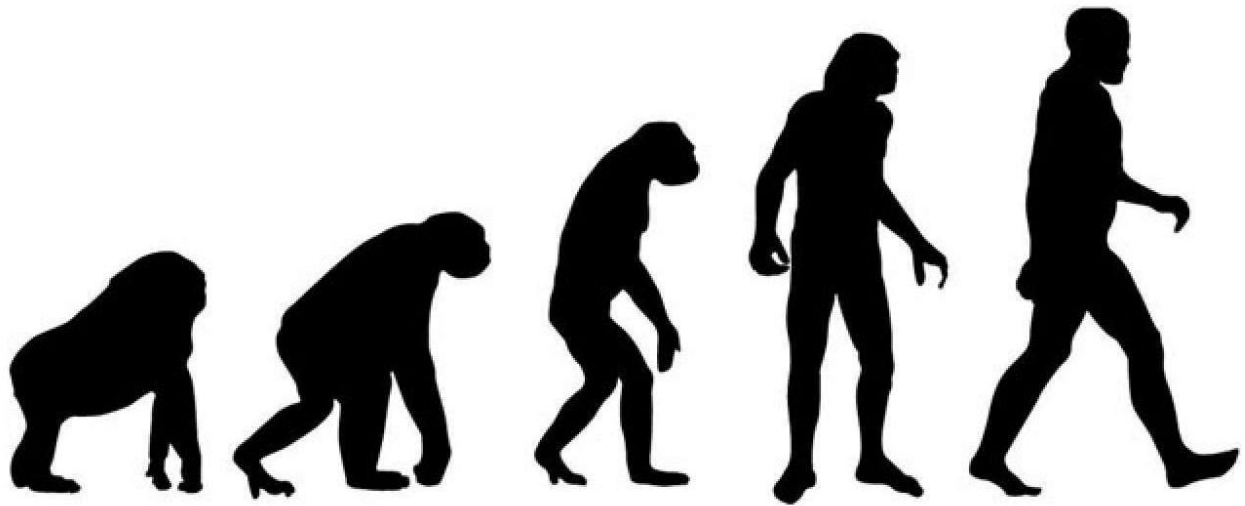


# Colossochelys

## 2.5 Million Years Ago







# **The Human Race 200,000 Years Ago**







# Galapagos Tortoise Today

