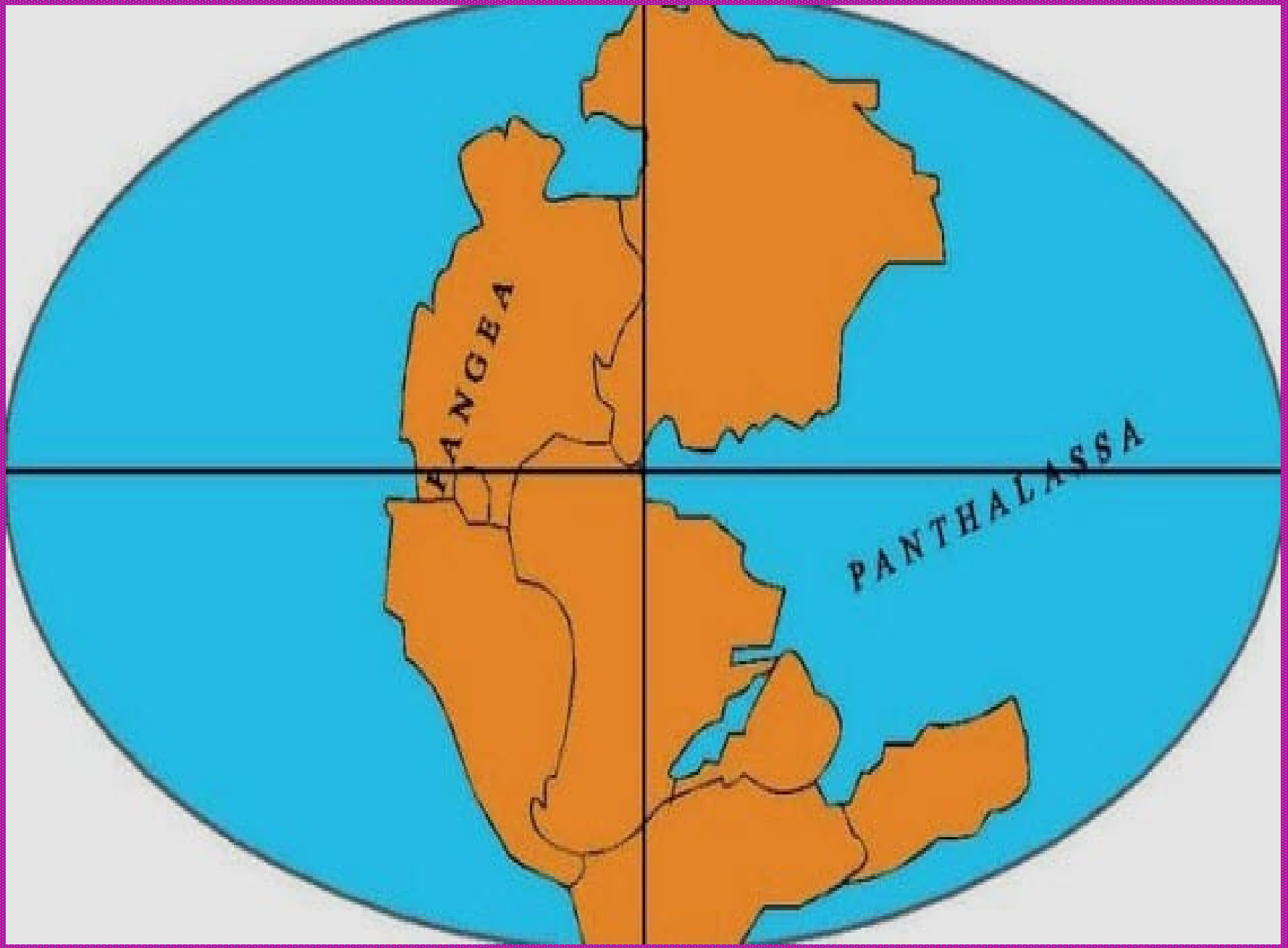
PHYSICAL FEATURES OF INDIA

CONTENTS

PLATE TECTONICS

The theory of **plate tectonics** states that the Earth's solid outer crust, the lithosphere, is separated into **plates** that move over the asthenosphere, the molten upper portion of the mantle.

Oceanic and Continental **plates** come together, spread apart, and interact at boundaries all over the planet.


PANGEA
PANTHALASSA


Eurasia
North America
LAURASIA
PANGEA
Equator
Tethys Sea
South America
Africa
India
GONDWANALAND
Australia
Antarctica

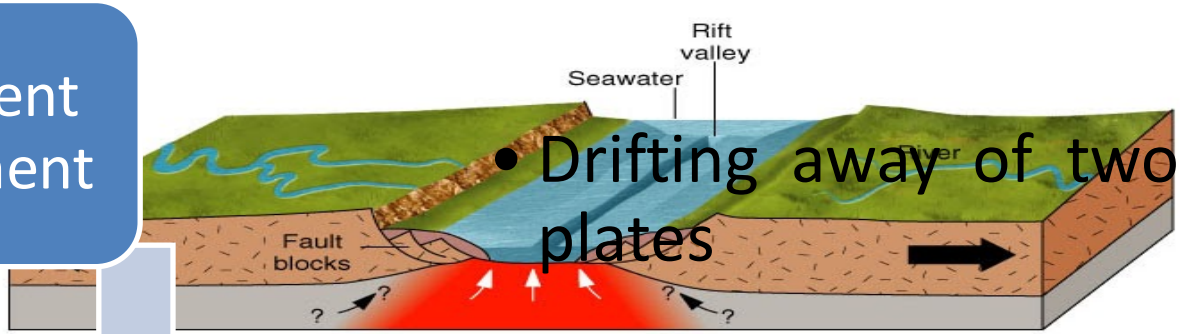
TYPES OF PLATE TECTONIC

Convergent movement

- strong Collision of two plates
- Either between Continental plates
- Between a Continental plate or an Oceanic plate

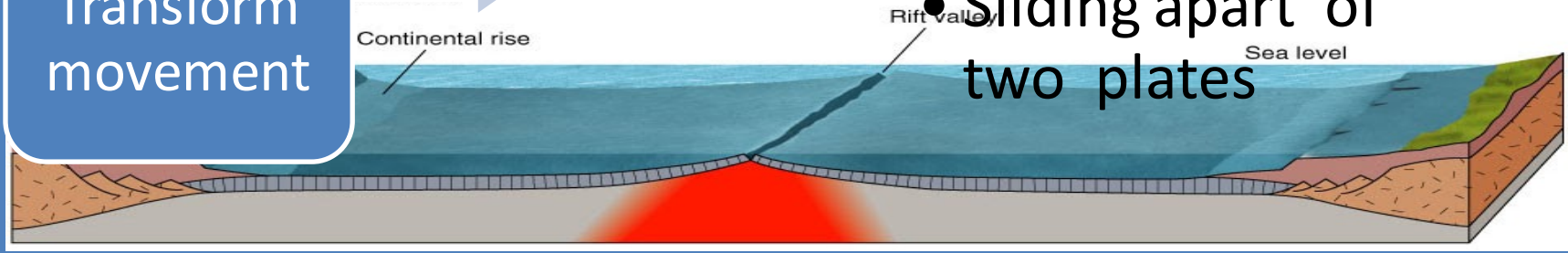
Divergent movement

- Drifting away of two plates

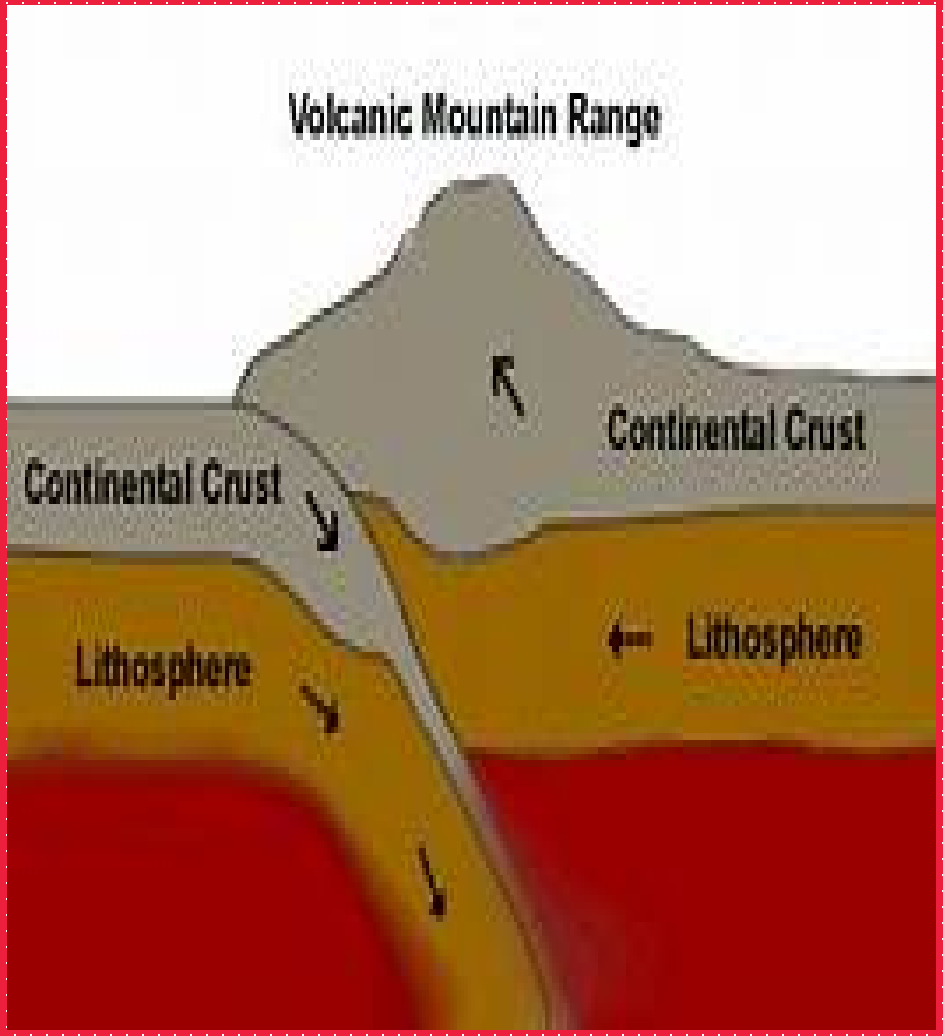


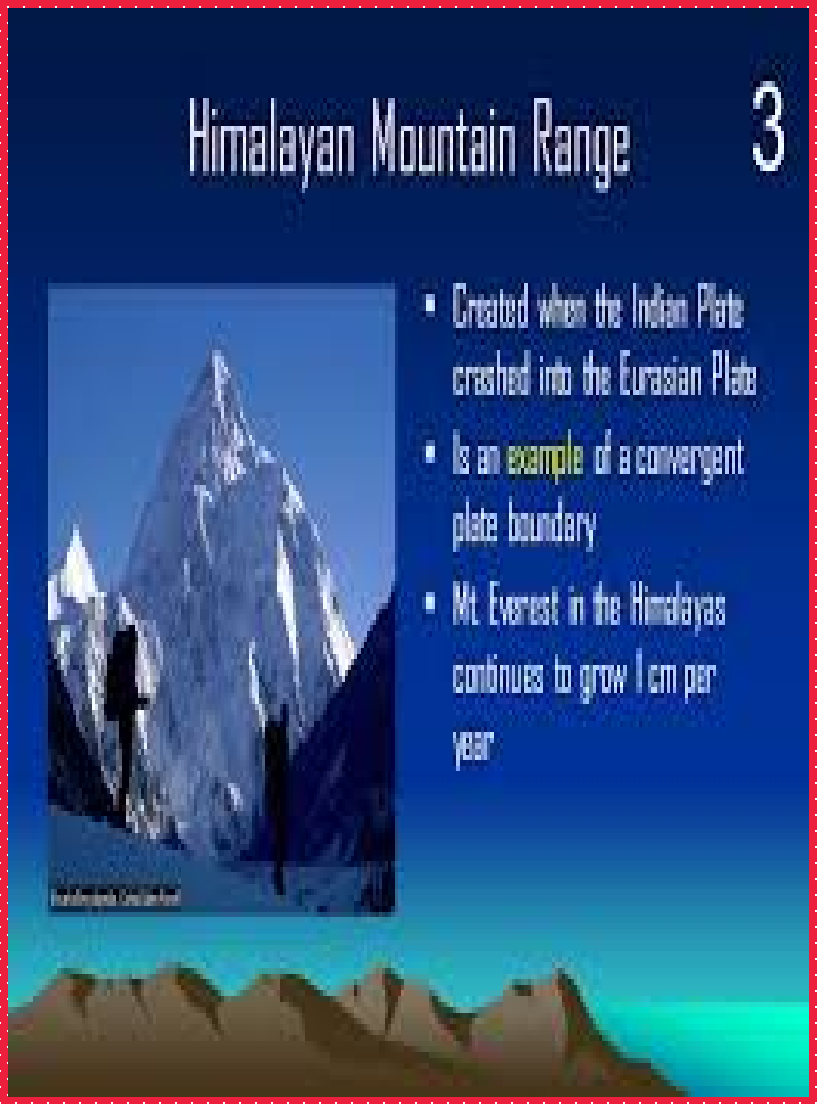
Transform movement

- Sliding apart of two plates



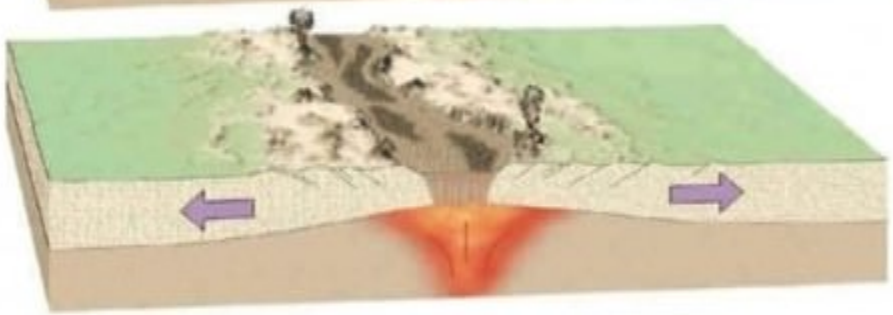
FEATURES OF CONVERGENT MOVEMENT



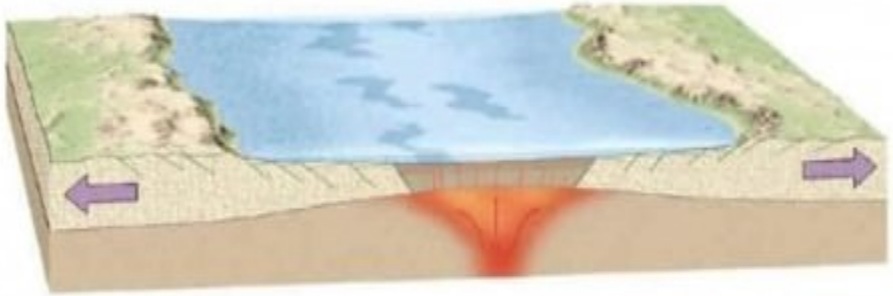


Features of Divergent Movement

Stage 1: Wpwarping of the lithosphere. Beginning of the formation of the divergent plate boundary



Stage 2: Formation of a rift valley. **East African Rift Valley** is at this stage



Stage 3: Formation of a linear or narrow sea. **Red Sea** is at this stage.

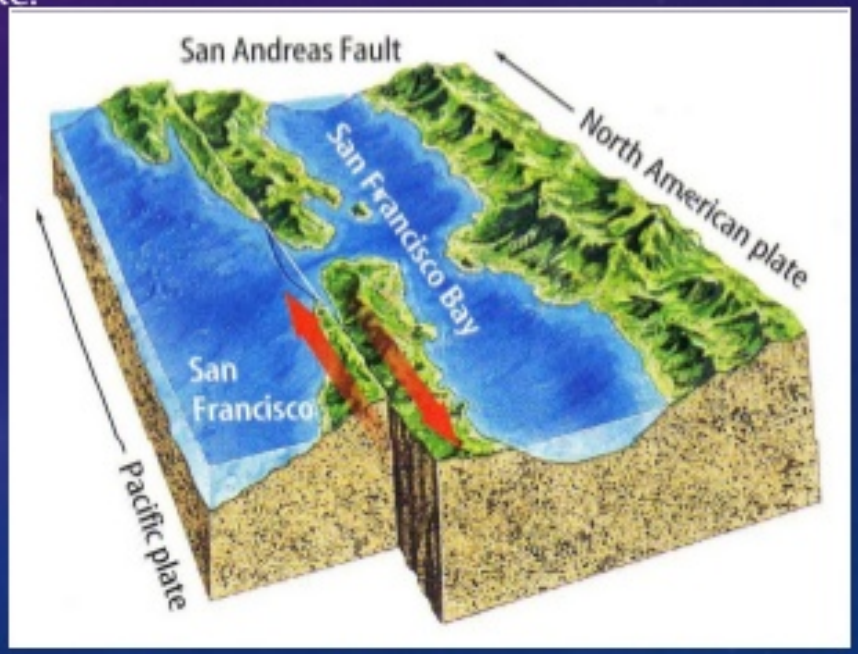
Stage 4: Formation of Ocean. A well develoed mid-oceanic ridge. Active crust formation. All major oceans are at this stage

3. Transform Boundary

- When two plates slide past each other moving in different directions or the same direction, it is termed a transform boundary and is characterized by a transform fault and earthquake activity.

- An example of a transform fault is the San Andreas Fault in California. Here the North American Plate joins the Pacific Plate. The difference in plate motion along the contact (fault) leads to a buildup of strain energy that sometimes slips releasing a huge amount of energy and causing an earthquake.

An aerial photo of the San Andreas fault line.

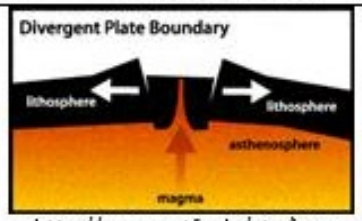
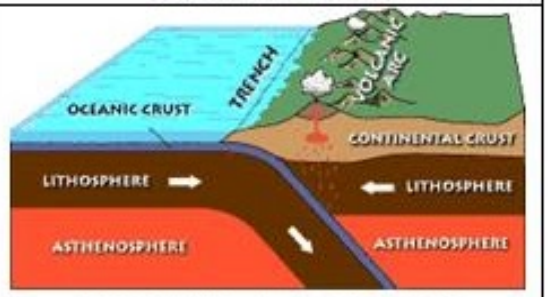


Movement between the 2 plates at the San Andreas Transform Fault.

Name(s): Erin, Elise, Bruno, Natalie

PLATE BOUNDARIES DATA CHART

Be sure to **use** and **highlight** all the vocabulary words listed at the end of this chart.
Remember to list ***at least*** 2 sources at the bottom of the chart.

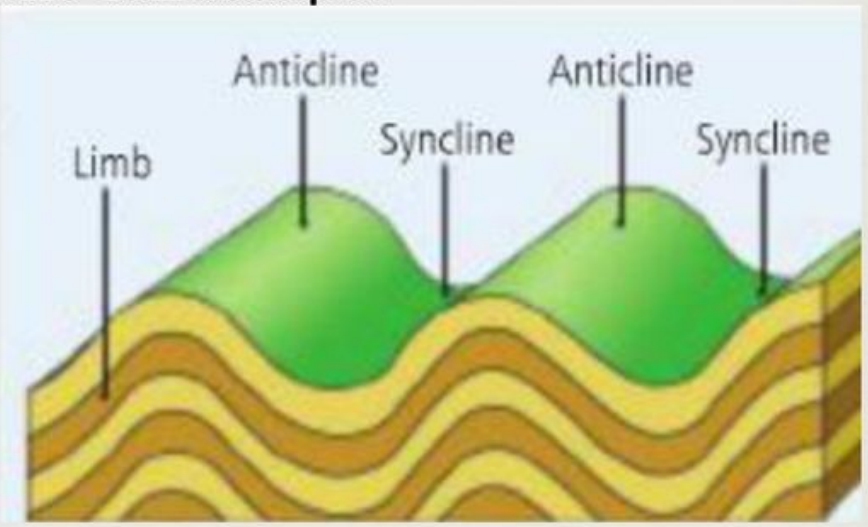
	TRANSFORM	DIVERGENT	CONVERGENT
Diagram, Picture, or Drawing	 http://teachers.saschina.org/rderozario/files/2009/11/transform.jpg	 http://www.cotf.edu/ete/images/modules/msese/earthsysflr/EFPlateP3.gif	 http://www.nature.nps.gov/geology/usgsnps/pltec/contvsocn288x157.gif
Where does this boundary occur? (on land, under water, or both)	Both on land and in water.	Both on land and in water.	Both on land and in water.
Explain how the plates are moving at this boundary, what happens to the crust, and what causes this plate motion.	Plates slide horizontally past each other, crust is neither made or destroyed, convection currents in the mantle causes the plates to move this way.	Plates pull away from each other, crust is made, convection currents in the mantle causes the plates to move this way.	Plates move toward each other and collide, crust is destroyed, convection currents in the mantle causes the plates to move this way.
		Oceanic crust is formed at rift valleys, which is a crack in the	Volcanoes form when plates collide and one oceanic plate slides under

Folding

The buckling of a rock layer that was once horizontal. Buckles or folds appear on the landscape.

The main type of folds are:

- Anticlines ⬆
- Synclines ⬇



Faulting

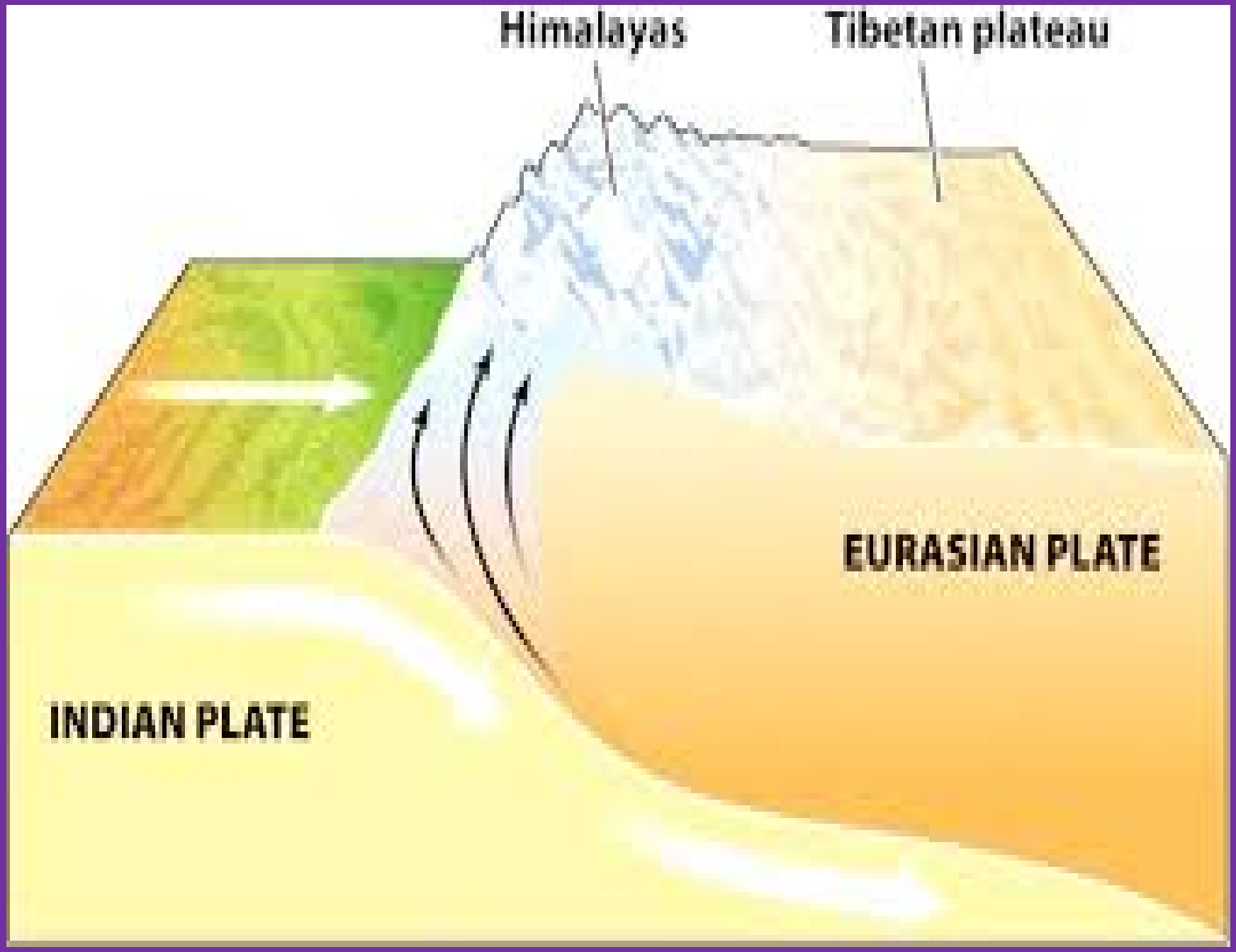
Faulting is the result of the movement of the earths plates. Faults occur where there is stress along a weak point in the earths crust.

FORMATION OF HIMALAYAS

formationa of himalayas.mp4

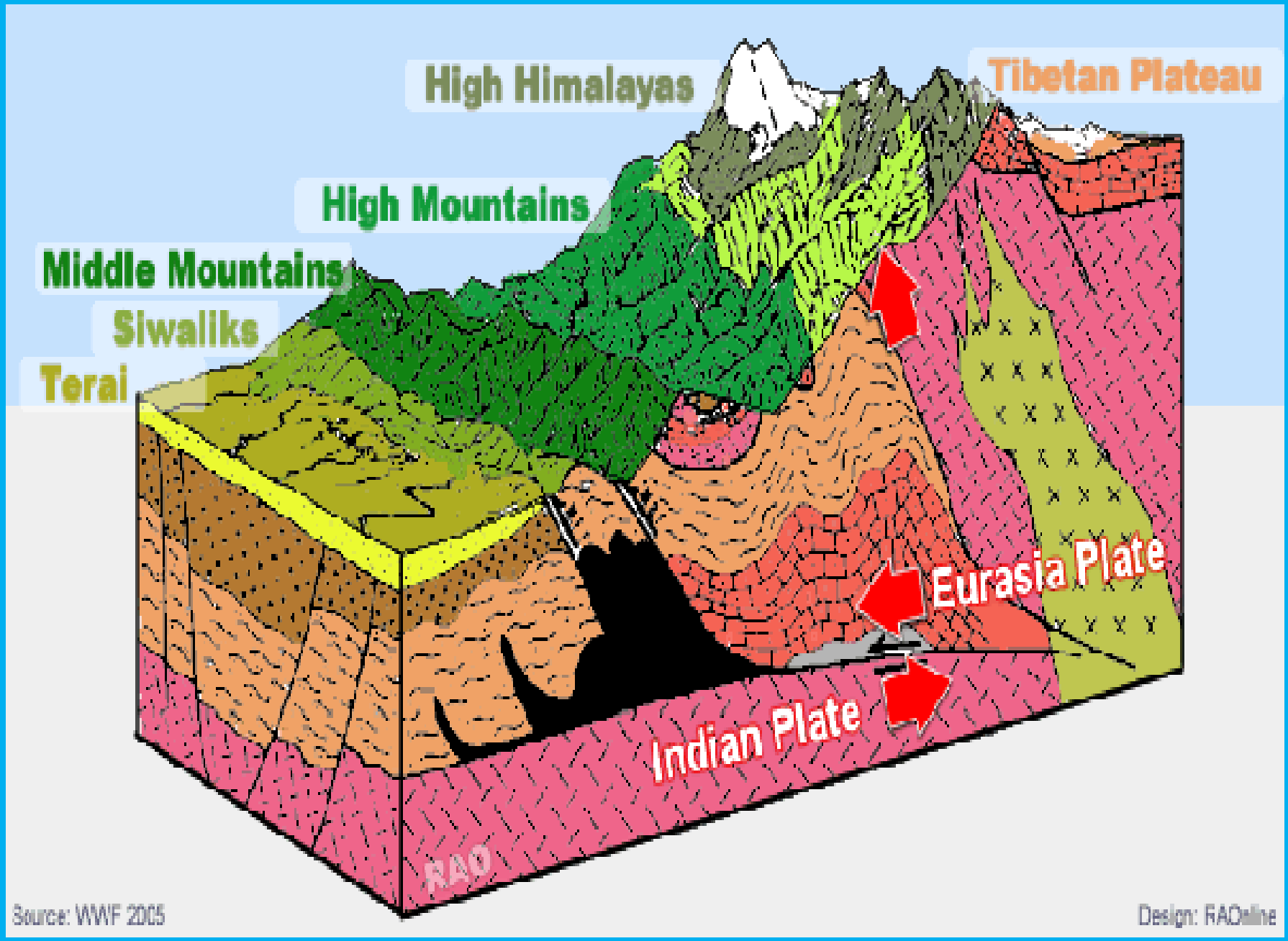
https://youtu.be/PDrMH7RwupQ

DIVERGENT MOVEMENT OF INDIAN PLATE FROM AUSTRALIAN PLATE


Himalayas
Tibetan plateau
EURASIAN PLATE
INDIAN PLATE

- The convectional currents split the crust into a number of pieces .
- Leading to the drifting of the Indo-Australian plate after being separatedfrom the Gondwana land towards north.
- The northward drift resulted in the collision of the plate with the much larger Eurasian Plate.
- Due to this collision, the sedimentary rocks which were accumulated in the geosyncline known as the *Tethys* were folded to form the mountain system
  of western Asia and Himalaya.

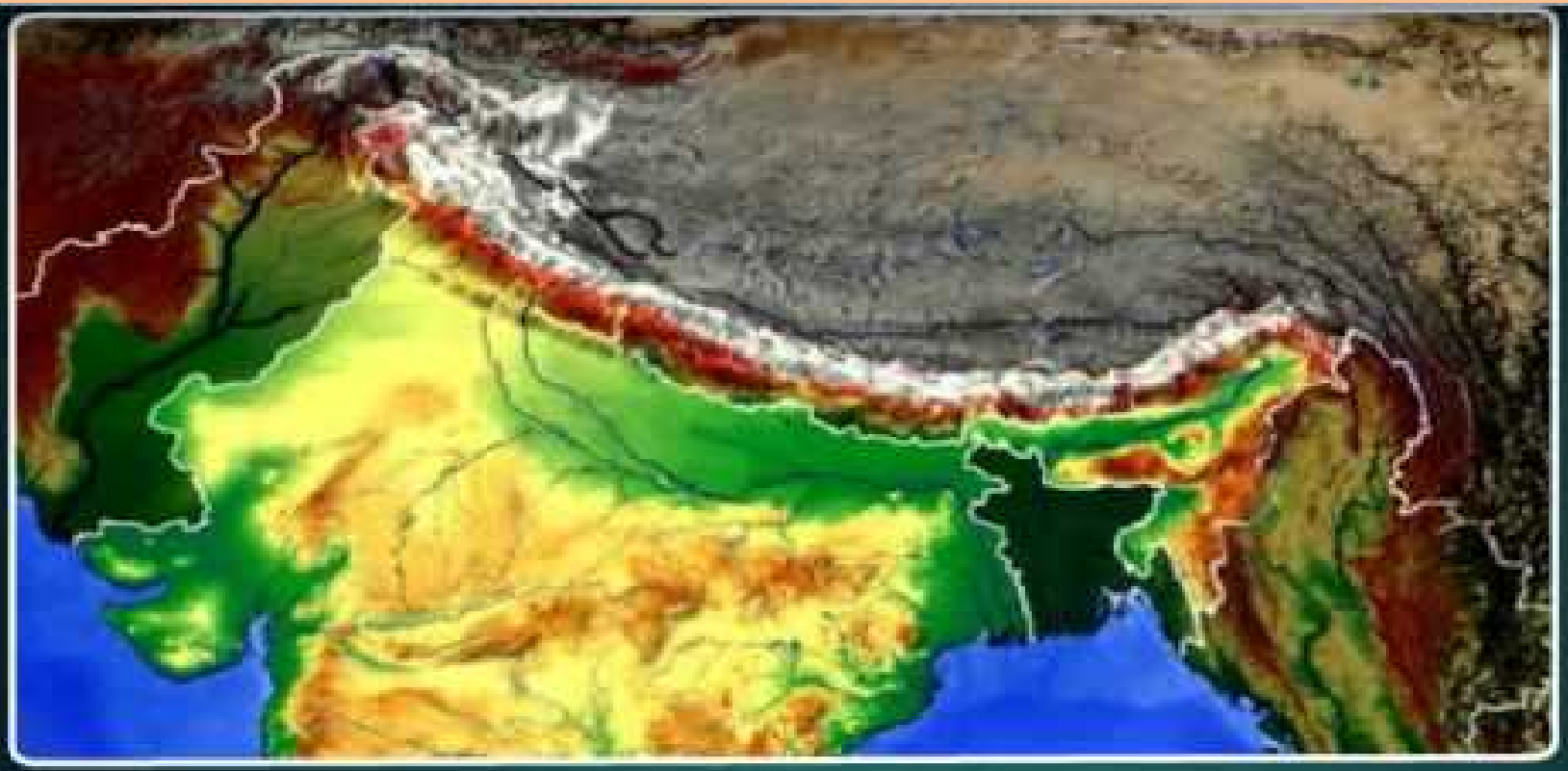

Physical Divisions of India
The Northern Mountainous Region
The North Indian Plains
The Indian Plateau
The Coastal Region
The Indian Islands


High Himalayas
Tibetan Plateau
High Mountains
Middle Mountains
Siwaliks
Terai
Eurasia Plate
Indian Plate
MBT
Source: WWF 2005
Design: RAOnline

The HIMALAYAS

- Geologically young
- Structurally fold mountains .
- Stretch over the northern borders of India.
- mountain ranges run in a west-east direction from the Indus to the Brahmaputra.
- Represent the loftiest and one of the most rugged mountain barriers of the world.
- They form an arc, which covers a distance of about 2,400 Km.
- Their width varies from 400 Km in Kashmir to 150 Km in Arunachal Pradesh.
- Altitudinal variations are greater in the eastern half than those in the western half.

Physiographic Division of Himalayas



- The Himalayan range is not a single range.
- It consists of three parallel mountain ranges from north to south.
- They are the Great Himalayas or Himadri, the Lesser Himalayas or Himachal and the Outer Himalayas or Shiwaliks.

The Greater Himalayas

The greater Himalayas or Himadri or northern ranges, average 6000m in height and has the 3 highest mountain ranges of the world.

I. Mount Everest 8848m

II. K2 or Mount Godwin 8611m

III. Kanchenjunga 8598m

In such high altitude there are only few passes like Shipki la (in Sutlej valley), Jelep la and Nathu la. The greater Himalayas contains several glaciers which are the source of rivers Ganga and Yamuna. The core part of this range is granite.

Lesser Himalayas (Himachal)

THE LOWER HIMALAYAS OR SHIWALIK

The shiwalik is the southern most and lowest range of the himalayas. The areas at the foothills of the shiwalik range is called the tarai region. This area has thick forest and many varieties of wildlife.

IMPORTANT MOUNTAIN PEAKS OF THE WORLD