Evidence for Evolution: lab stations

This slide deck contains the manipulatives, images, and data you will need to complete the lab packet. Transfer all responses to the **lab packet** and submit that; you do not need to turn in this file.

Evidence for Evolution Lab
Part I: Scrambled History

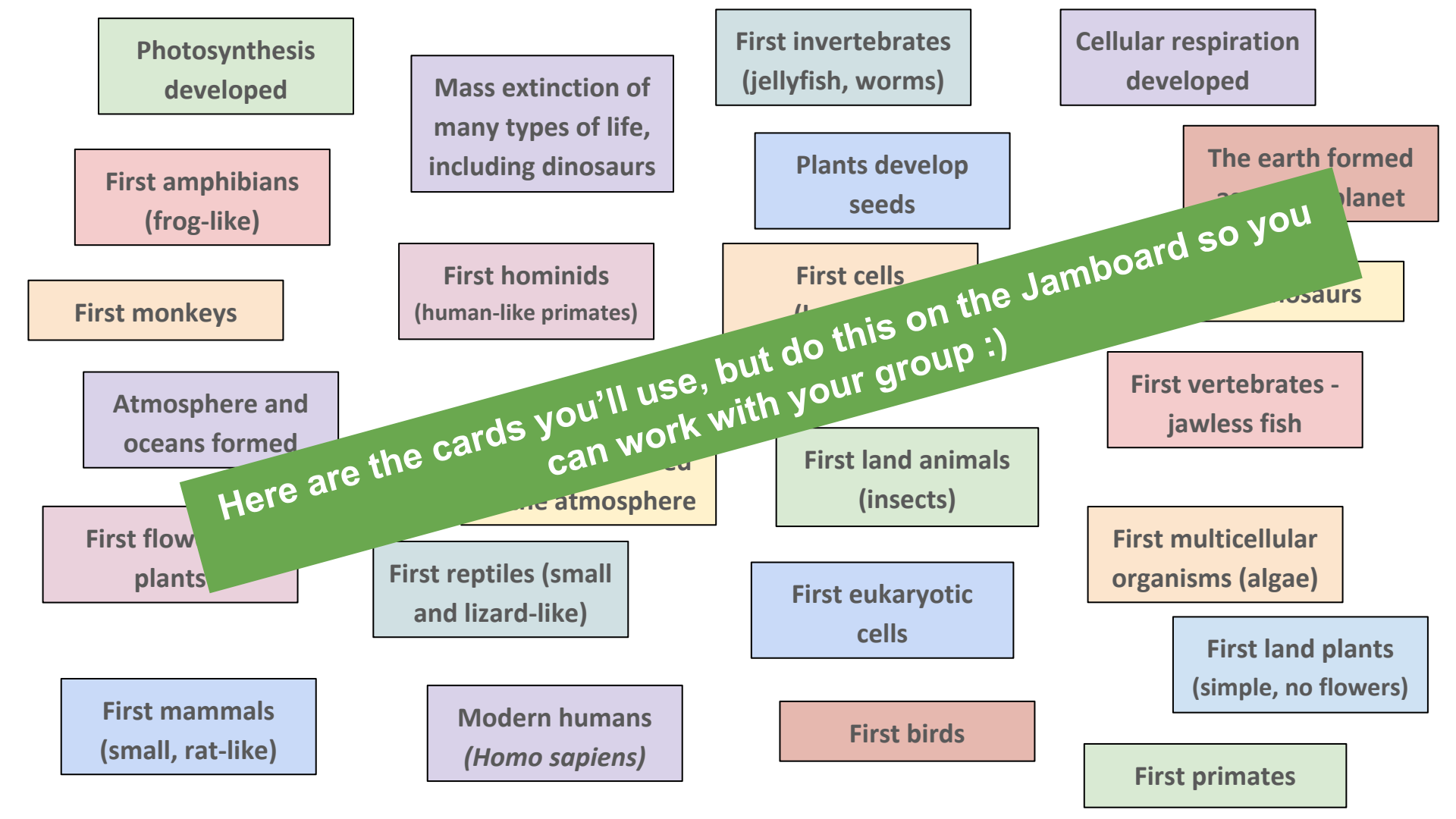
Directions: ON THE JAMBOARD (separate Schoology link), find your group's numbered slide and write your names on the sticky note. The cards on this slide represent 24 events that happened during the billions of years that it took for life to evolve on our planet. Read and discuss the cards, and then drag and drop them into a logical sequence that tells the story of how living things developed on Earth.

Place the cards in 4 columns to reflect the numerical order shown in the table below:

***Note**: Your reasoning behind the order you come up with is more important than getting the "right" answer, so think through these carefully and be prepared to explain your choices!*

Once you have sorted the cards, answer the questions in the lab packet.

1st event	7th event	13th event	19th event
6th event	12th event	18th event	24th event


Photosynthesis developed
Mass extinction of many types of life, including dinosaurs
First invertebrates (jellyfish, worms)
Cellular respiration developed
First amphibians (frog-like)
Plants develop seeds
The earth formed
First hominids (human-like primates)
First cells
First monkeys
Here are the cards you'll use, but do this on the Jamboard so you can work with your group :)
Atmosphere and oceans formed
First vertebrates - jawless fish
First land animals (insects)
First flow plants
First reptiles (small and lizard-like)
First multicellular organisms (algae)
First eukaryotic cells
First land plants (simple, no flowers)
First mammals (small, rat-like)
Modern humans (Homo sapiens)
First birds
First primates

Part II: Human History

Skull Comparison

Record your observations about these images in the table in the lab packet. The next slide has additional pictures for you.

Homo neandertalensis

Paranthropus boisei

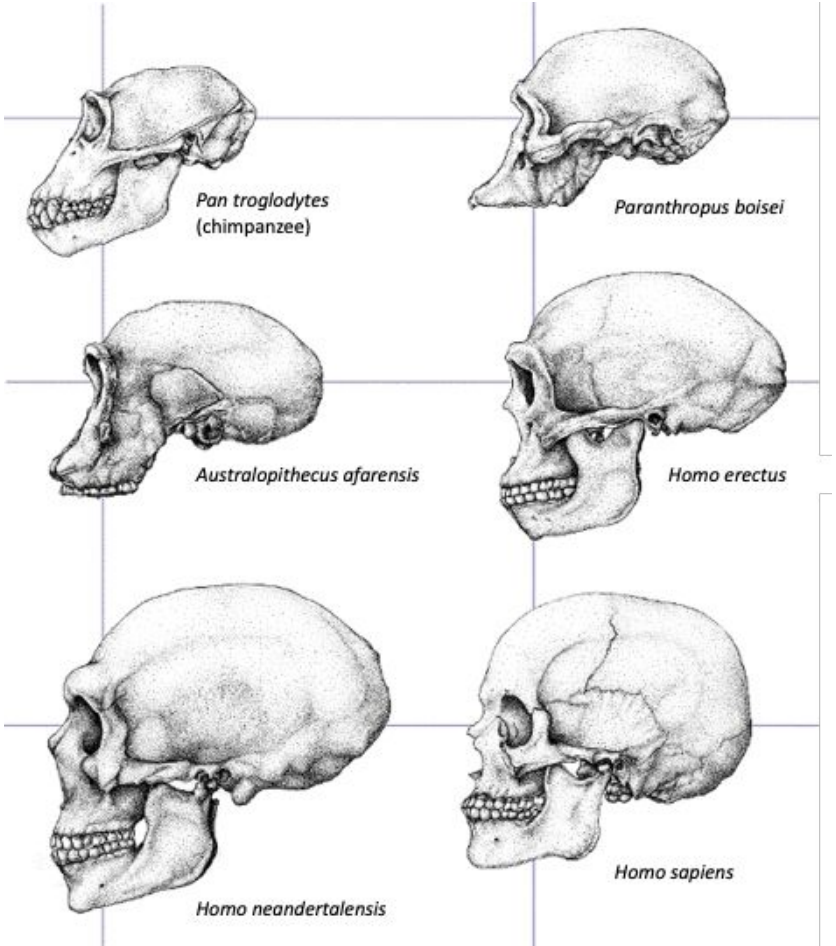
Homo sapiens (modern human)

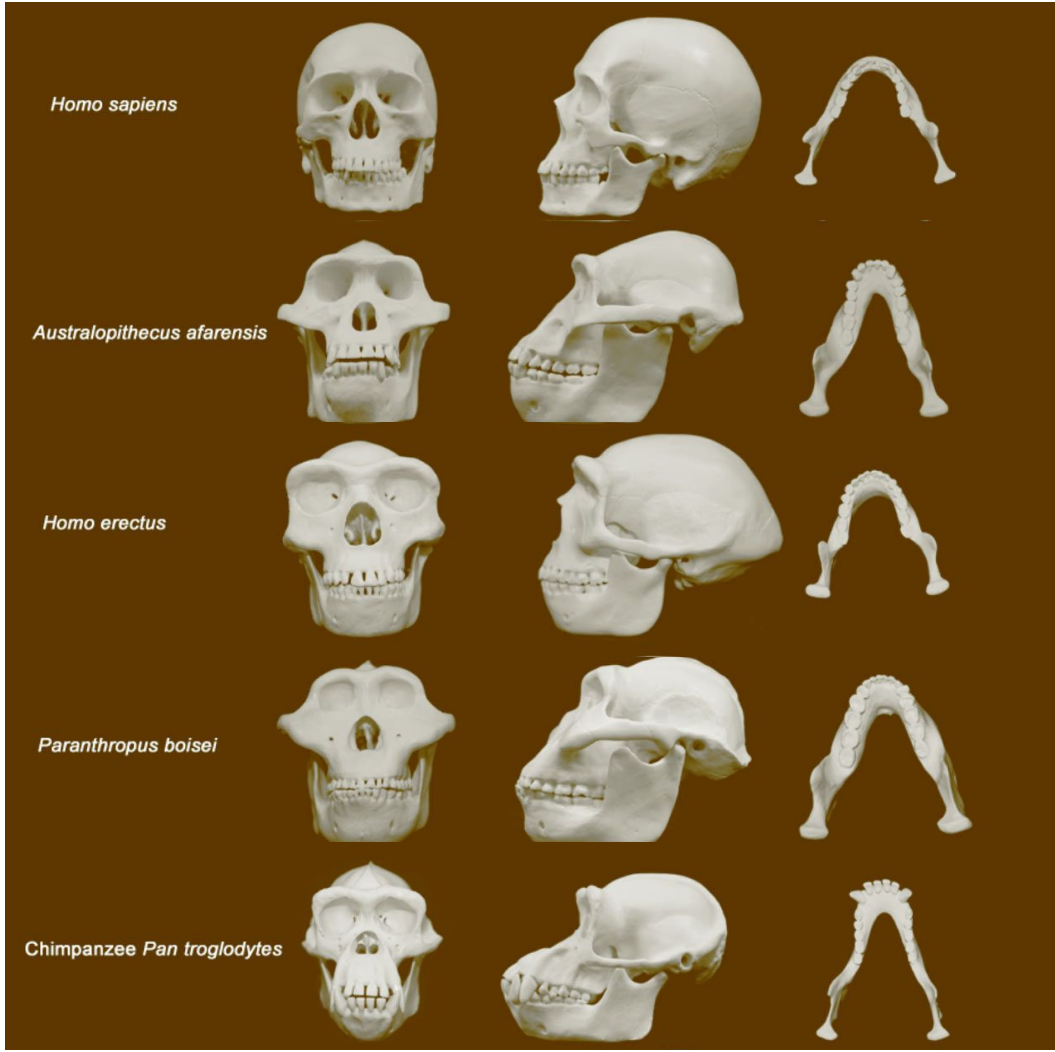
Homo erectus

Australopithecus afarensis

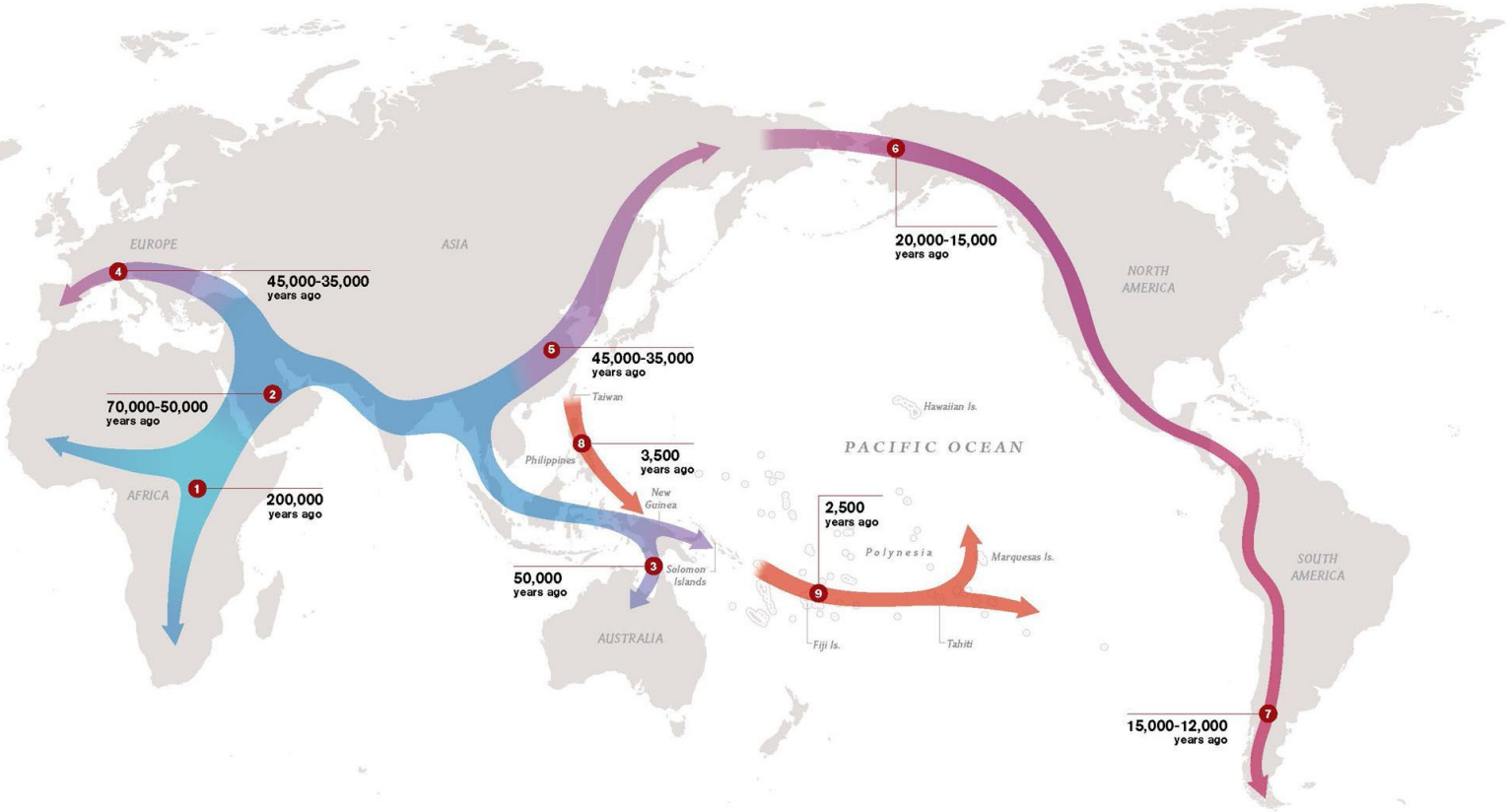
Pan troglodytes (chimpanzee)

Skull Comparison, cont.





Human History: Migration



GLOBAL JOURNEY

Once modern humans began their migration out of Africa some 60,000 years ago, they kept going until they had spread to all corners of the Earth. How far and fast they went depended on climate, the pressures of population, and the invention of boats and other technologies. Less tangible qualities also sped their footsteps: imagination, adaptability, and an innate curiosity about what lay over the next hill.

MAP: INTERNATIONAL MAPPING
SOURCES: CHRIS STRINGER, NATURAL HISTORY MUSEUM, LONDON; SPENCER WELLS, NG STAFF

Part III: Radiometric Dating

Notes: IV = independent variable
DV = dependent variable
Connect points with a curve

Potassium-40 (K-40) decay curve

IV: time (to 5 billion years)
DV: % original K-40 remaining

Decay Data for Potassium-40 (K-40)	
% K-40 Remaining	**Age of Specimen**
100%	Alive (0)
50%	1.25 billion years
25%	2.5 billion years
12.5%	3.75 billion years
6.26%	5.0 billion years

Carbon-14 decay curve →

IV: time (to 70,000 years)
DV: parts per trillion

Decay Data for Carbon-14 (C-40)	
Parts per trillion (ppt)	**Age of Specimen**
1.0	Alive (0)
0.5	5,730 years
0.25	11,460 years
0.125	17,190 years
0.063	22,920 years
0.032	28,650 years
0.016	34,380 years
0.008	40,110 years
0.004	45,840 years
0.002	51,570 years
0.001	57,300 years

Part V: Mass Extinctions and Change Over Time