

Chapter 2 Notes

1. Swingers to Walkers (23-3m ya)

- **Early Apes (23 million years ago)**

- Perfectly adapted for forest life with long arms, curved fingers, flexible shoulders
- Forward-facing eyes to judge jumping distances

- **Climate Change Challenge (10 million years ago)**

- Earth cooled, forests shrank, savannas grew
- Some apes ventured into open grasslands

- **Walking Upright (7 million years ago)**

- First "hominins" stood on two legs
- Advantages: seeing over tall grass, traveling longer distances, keeping cooler, freeing hands

- **Notable Early Hominins**

- **Ardipithecus (4.4 million years ago):** Could walk upright and climb trees
- **Australopithecus (4 million years ago):** Clearly built for walking upright
- **Lucy (3.2 million years ago):** Famous skeleton showing upright walking

2. Homo habilis (2.8-1.5m ya)

- **Major Change:** First creatures to create tools rather than waiting for mutations
- **Oldowan Tools:** Simple stone flakes and choppers

- **Walking Upright (7 million years ago)**
 - Cut meat from animal bodies
 - Crack open bones for nutritious marrow
 - Process tough plant materials
 - Better defense against predators
- **Tool-Brain Cycle:** Better nutrition → larger brains → more sophisticated tool-making → even better nutrition

3. **Homo erectus** (1.9m-110k ya)

- **Body Features:** Taller (4.5-6 feet), stronger, 50% larger brain than Homo habilis
- **First to Leave Africa:** Spread across Asia to Georgia, China, and Indonesia
- **Fire Mastery (1 million years ago)**
 - Provided warmth, protection, light, and cooking
 - **Cooking changed human bodies:** smaller jaws, less strong teeth, shorter digestive systems, larger brains
- **Advanced Tools:** Created carefully crafted "Acheulean" hand axes
 - Used for 1.5 million years - longest-lasting technology in human history
 - Show planning and symmetry, perhaps the earliest beginnings of art

4. **Branching Family Tree** (700k-40k ya)

- **Homo heidelbergensis** (700,000 years ago): Important in-between species with larger brains
- **Three Branch-Off Species:**
 1. **Neanderthals (Europe):** Adapted for cold with thick, muscular frames, shorter limbs, larger noses

2. **Denisovans (Asia):** Less known, spread across Asia with special adaptations for high altitudes
3. **Homo sapiens (Africa):** Taller, slimmer bodies, higher foreheads, rounded skulls

5. The Thinking Revolution (100k-70k ya)

- **Brain Change:** Shape became more rounded, working far more efficiently
- **New Mental Abilities:**
 - **Abstract thinking**—imagining things that don't yet exist
 - **Future planning**—thinking about next season or year
 - **Symbolic thought**—using marks to represent animals
 - **Complex language**—building and sharing detailed knowledge
 - **Social intelligence**—tracking complex relationships
 - **Creative problem-solving**—combining existing tools and ideas in new ways
- **Unique Human Trait:** Lack of fixed instincts, allowing greater ability to change
- **Skillful Hands:** Perfect partner for creative brains with opposable thumbs and sensitive fingertips