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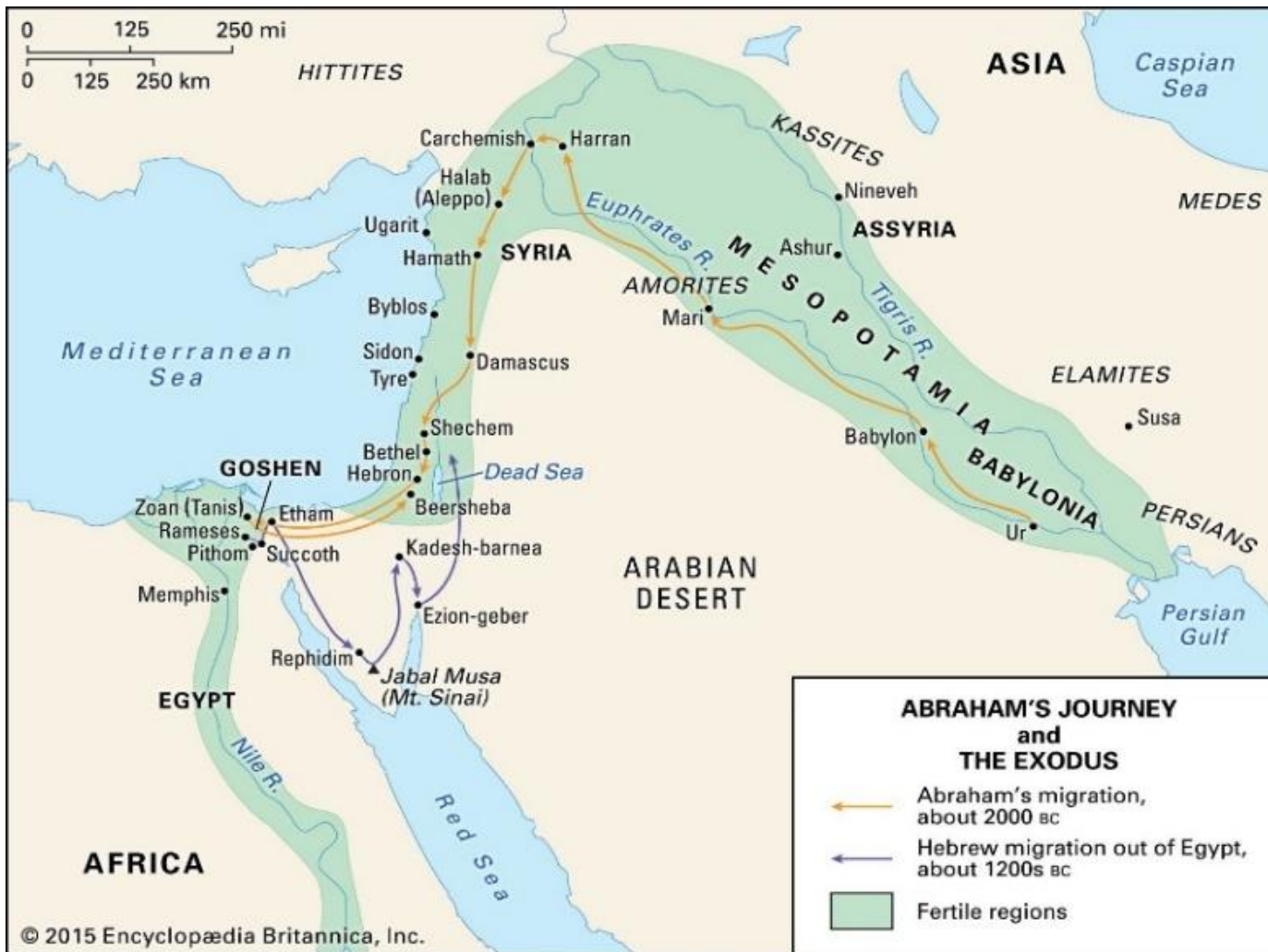
SURVIVAL SCIENCE

LESSONS 4B

WHAT IF YOU...

- had to travel over 1000 miles on foot?
- leave your home and family behind?

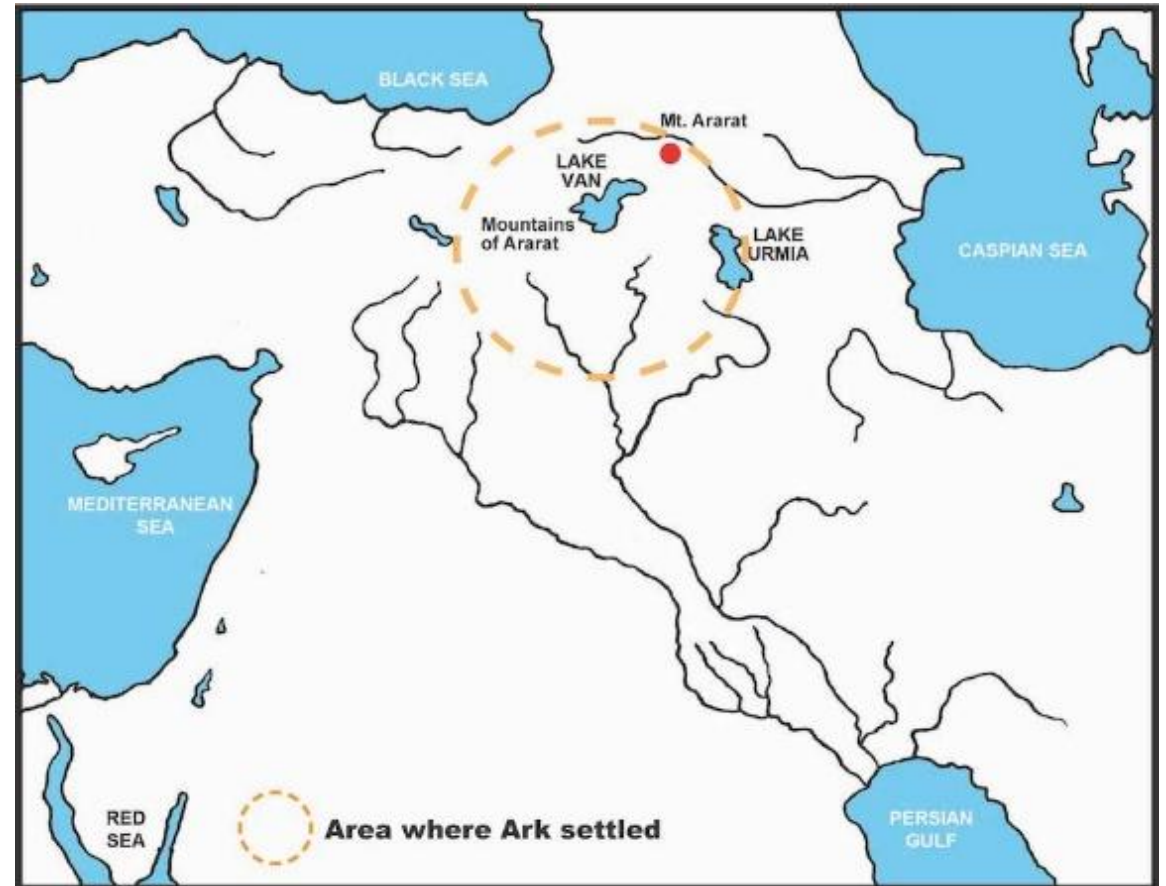
How would you navigate to your new location?



Remember how to find your way in the wilderness....

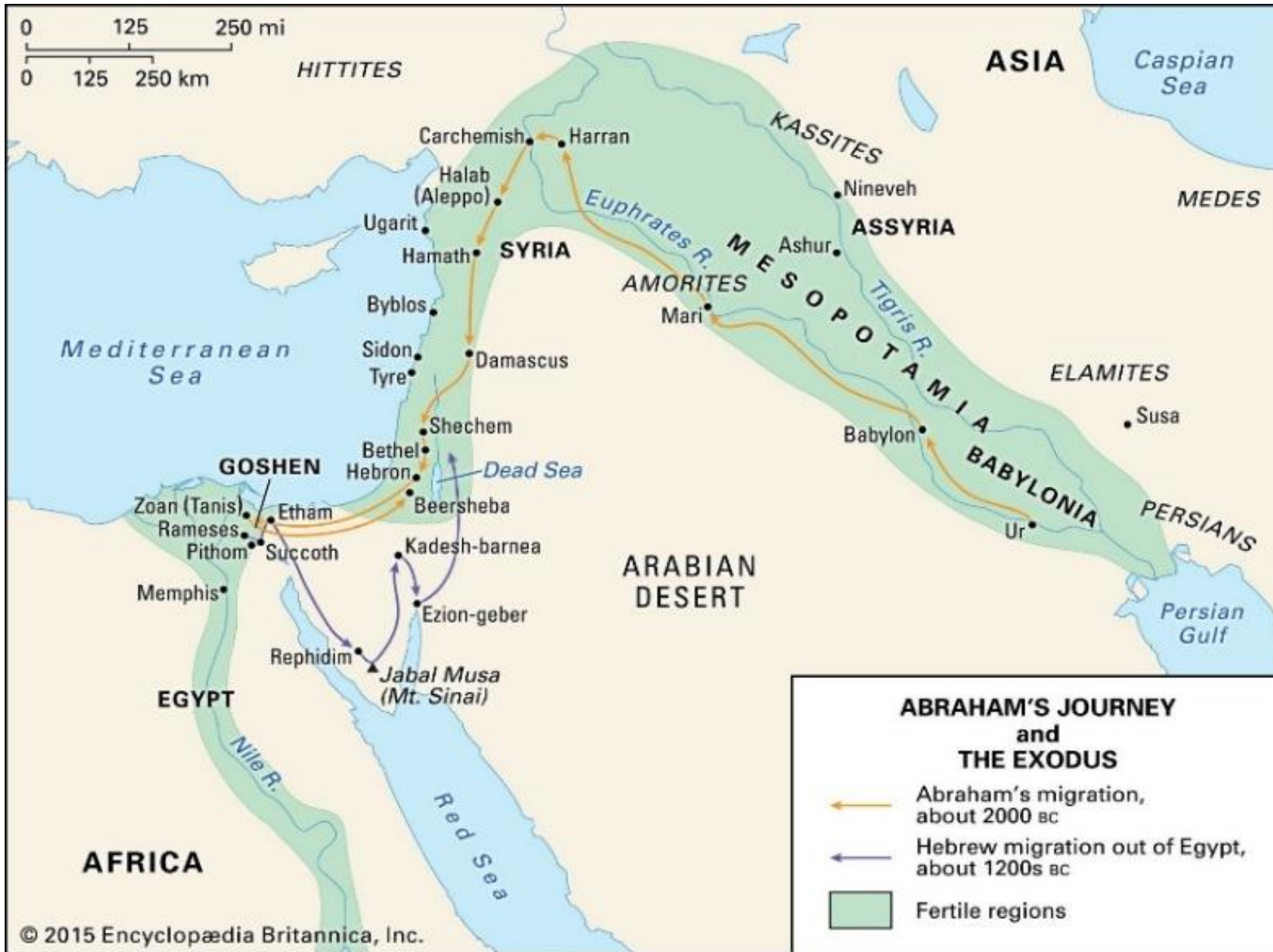
SURVIVAL TIPS

- Rivers provide pathways in the wild?
- Whether traveling up river or down river, rivers provide a water source.
- Abram was called to go to a new land.





Summer



THE FERTILE CRESCENT

Fertile means capable of sustaining vegetation.

Evidenced by:

RIVERS

RAINFALL ABUNDANCE

not desert-like

GOOD ORGANIC SOIL

not too sand

VEGETATION

trees, grasses, crops

Abraham's Journey

- From Ur to Harran
 - More than 1125 km
 - More than 750 mi
- From Harran to Shechem
 - More than 625 km
 - More than 400 mi

Due to Famine in Canaan,
Abraham left for Egypt & later
returned (not called to leave)

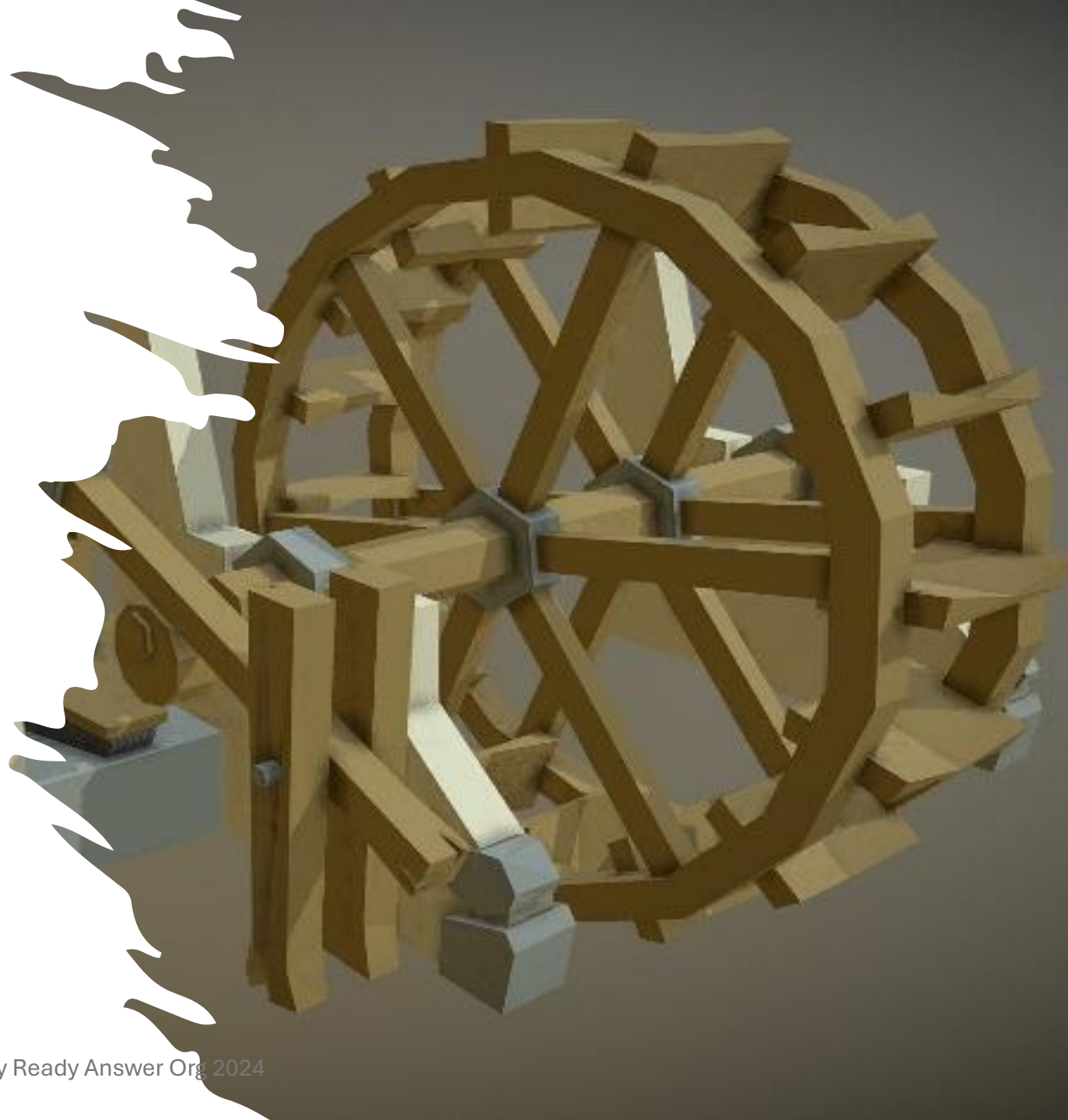
Egypt and back, 1000 km



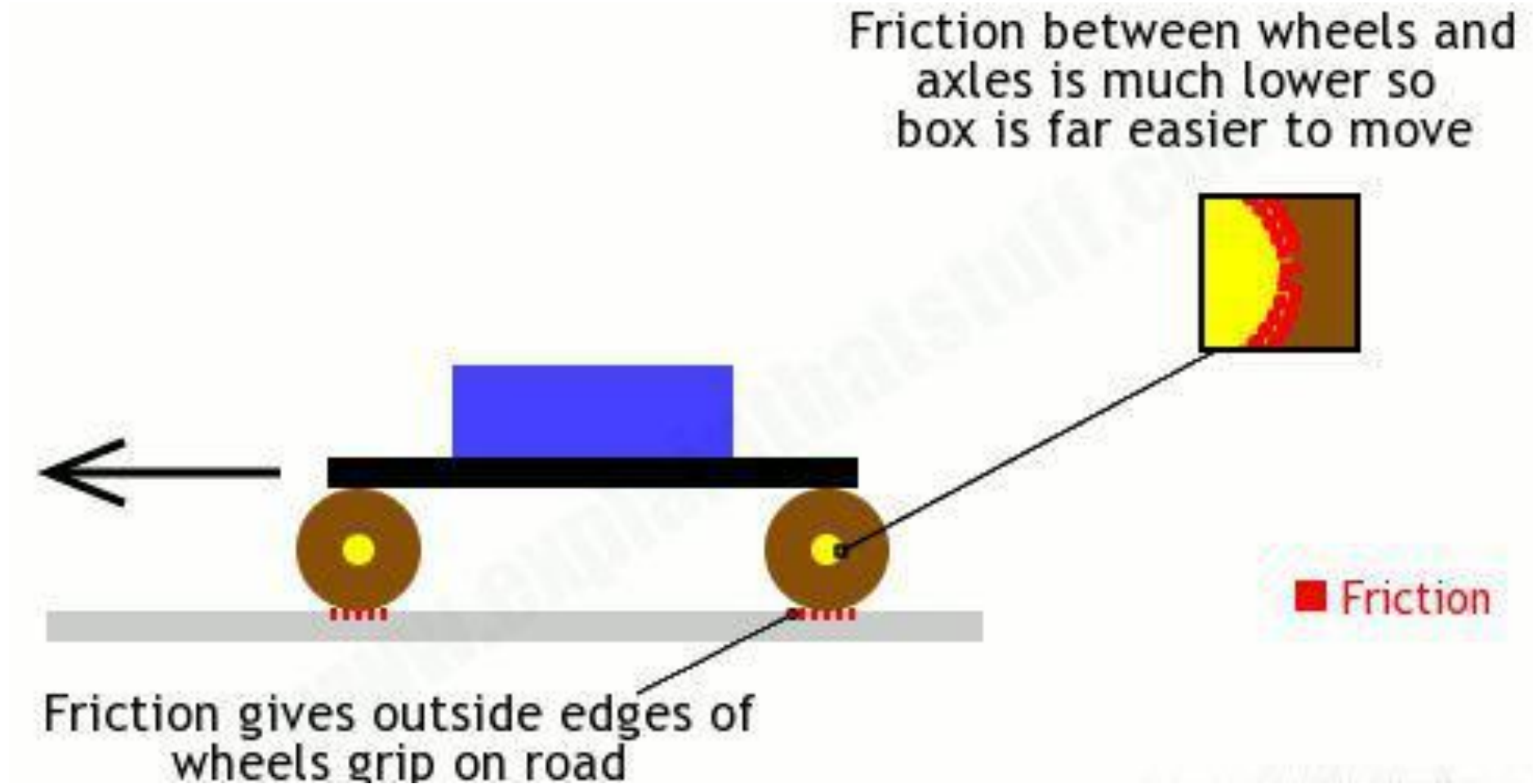
Survival includes making the most of man's knowledge and God's resources.

These resources all stem from God's creation. It's important to remember the Lord's hand in all things.

John 8:32 *Then you will know the truth, and the truth will set you free.*

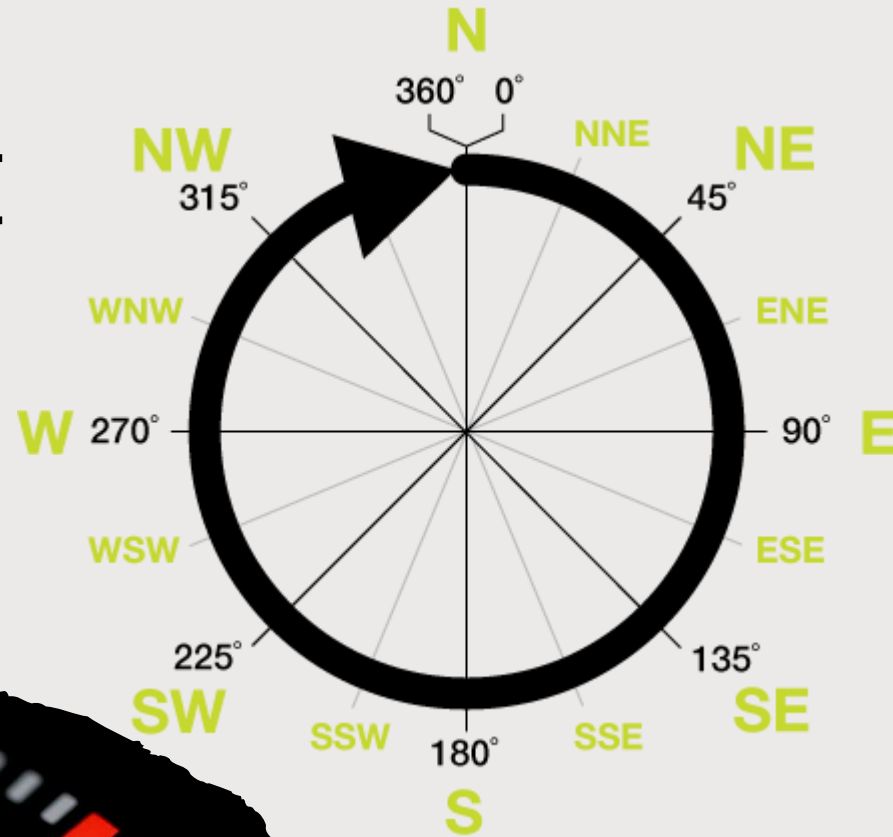


The physics of wheels



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WHEELS ROTATE
at various
RPM's or RPS's



ONE REVOLUTION

one 360 degree turn
one full radial turn

- **RPM's** the number of revolutions per minute or rev/min or r/m
- **RPS's** the number of revolutions per second or rev/sec or r/s



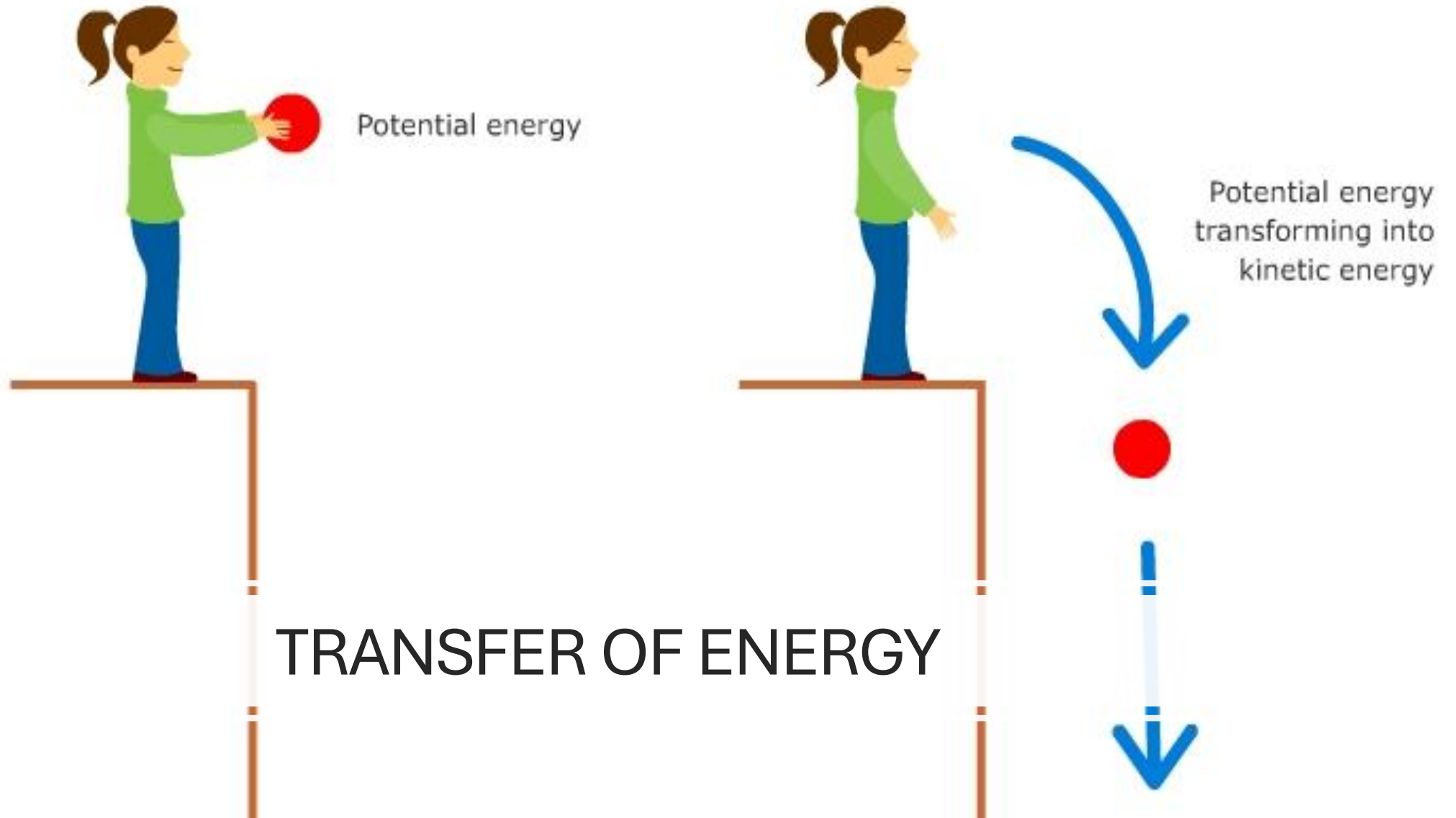
Energy is Needed to do Work

Ox need calories

Windmills need wind energy

Waterwheels need running water (or ox power 😊)

ENERGY TYPES – POTENTIAL AND KINETIC



Calculating Energy or Work

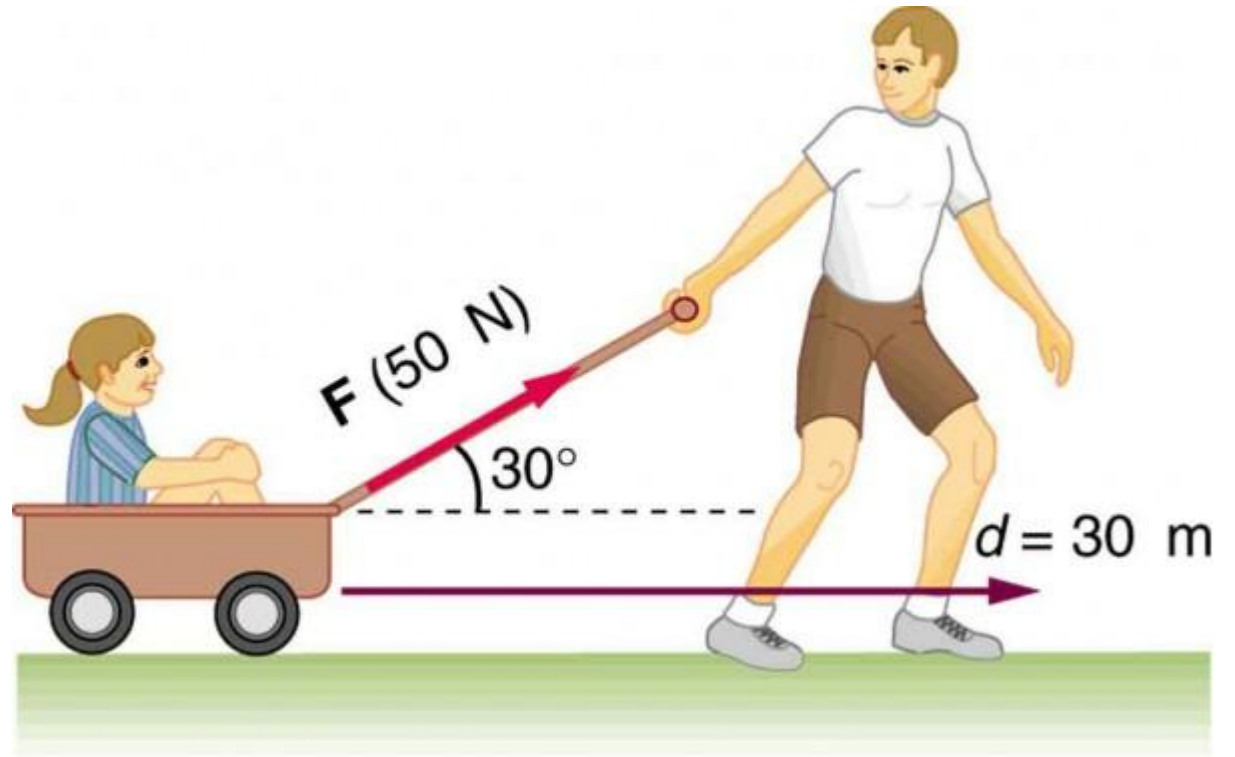
$$\text{Force} = ma$$

$$\text{Work} = Fd$$

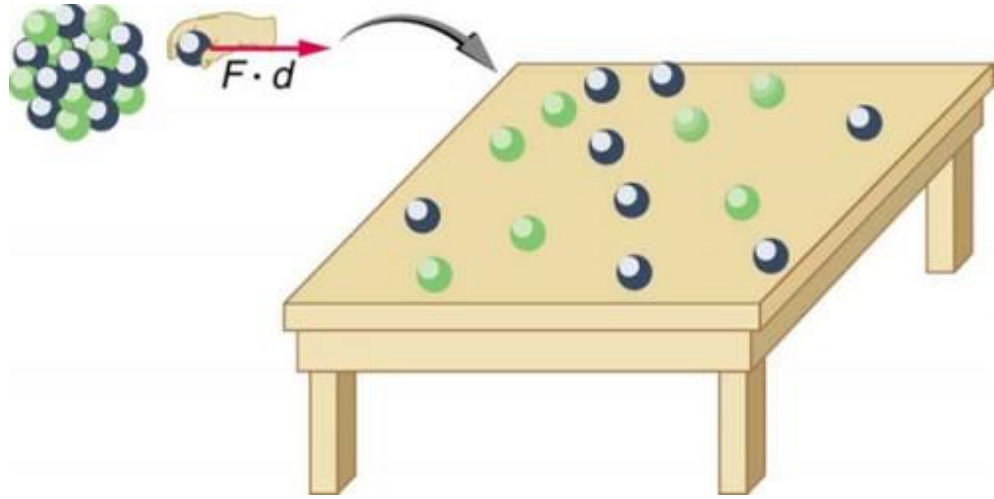
So, $\text{Work} = mad$ (mass x
acceleration x distance)

You won't find a "mad"
formula in your physics book

But we can do the math. $W = 50 \text{ kgm/s}^2 \times 30 \text{ m} = 150 \text{ kgm}^2/\text{s}^2$
(omitting the angular component of the force)

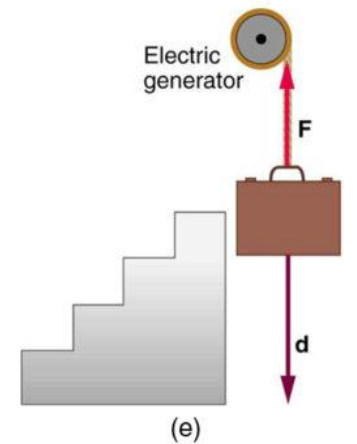
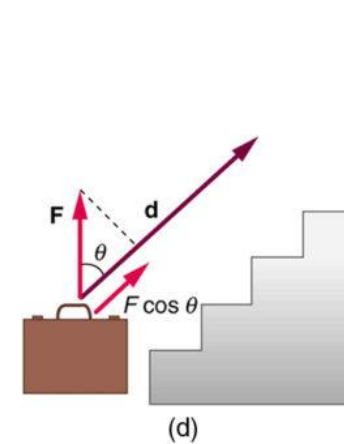
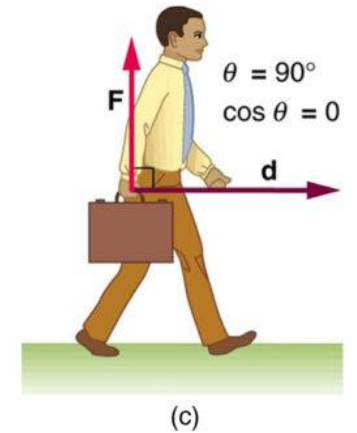
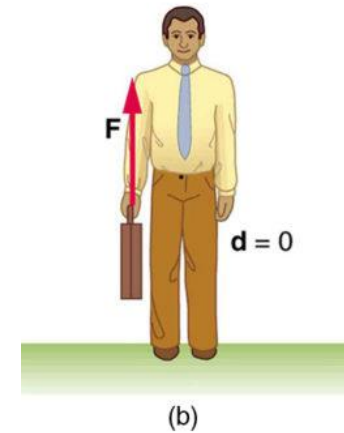
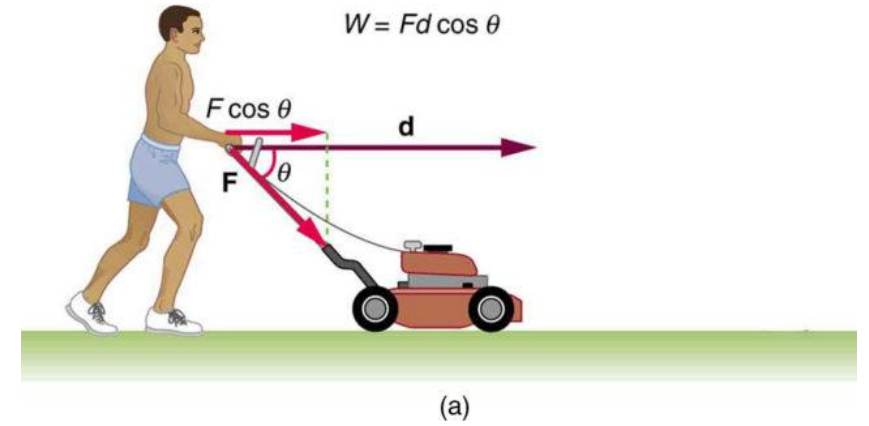


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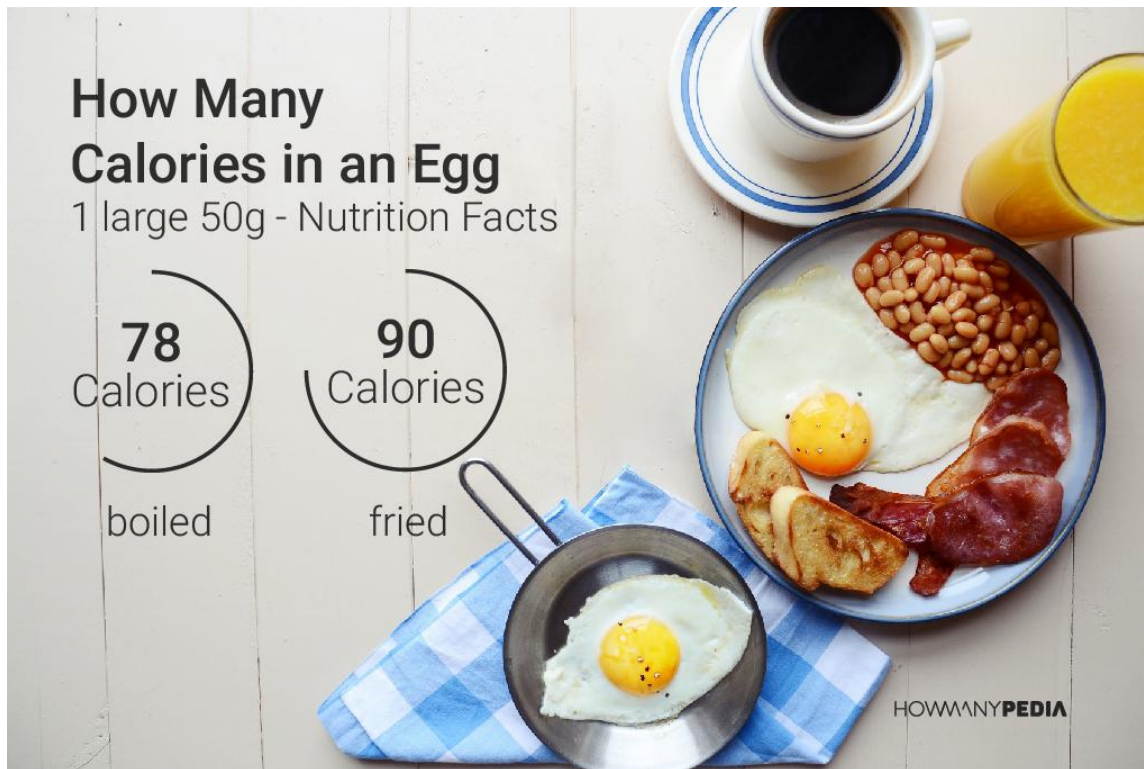
Work = F x distance

Unit of work: J
 $1\text{J} = 1\text{N.m}$
 $= 1\text{kg.m.s}^{-2}.\text{m}$
 $= 1\text{kg.m}^2.\text{s}^{-2}.\text{m}$



ENERGY/WORK use the same units

$$1 \text{ J} = 1 \text{ N} \cdot \text{m} = 1 \text{ kg} \cdot \text{m}^2/\text{s}^2.$$



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Energy
is given
in Joules
equal to
Newton
meters.

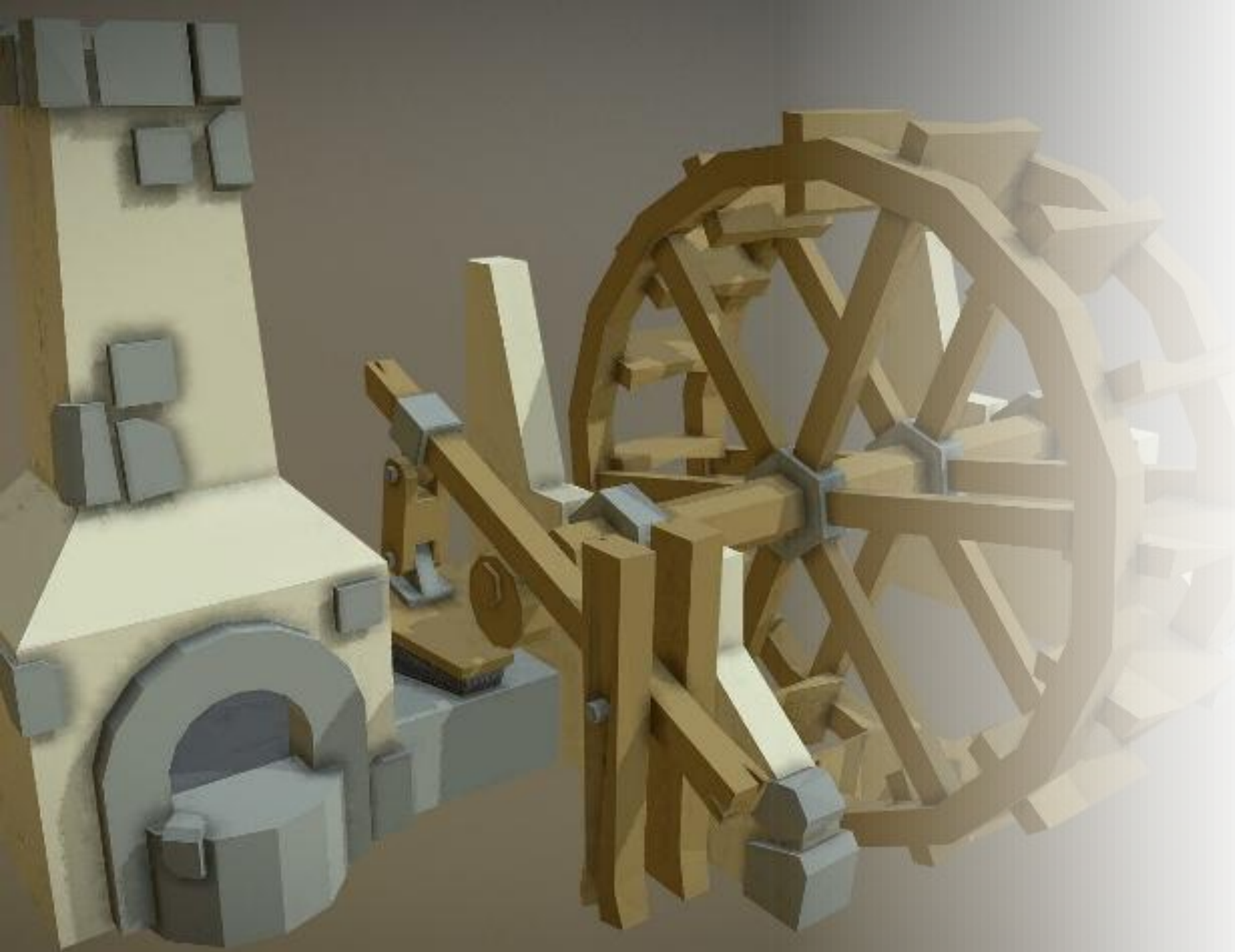
One calorie is
approximately
4.184 joules.

Energy is also
given in
calories.

Ancient Waterwheels

- Grinding Grain
- Milling Lumber
- Irrigation
- Delivering water to higher elevations for distribution through aqueducts or canals





Our Ingenuity,
Resources,
even Science – all
Stem from God

John 8:32 *Then you
will know the truth,
and the truth will
set you free.*

HUMAN DESIGNS TAKE INGENUITY

Whether levers or
paddles, wheels or
gears, metal or
wood, rods or
shafts, free or fixed –
man is capable of
creative design.

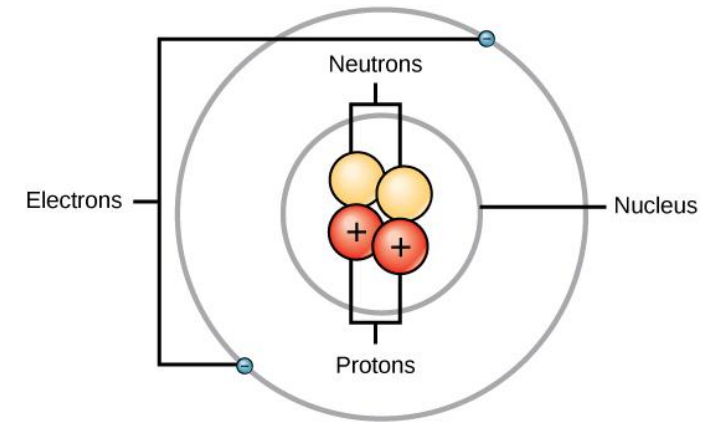


Were Early Humans Ape-like, or...

- Have humans always had language, creativity, ingenuity, and tools?
- Were they capable of reasoning and amazing workmanship?
- Did they maintain historical records, including genealogies and legal discourse?
- Have they subdued the earth and multiplied in a way that filled the earth?



Major Scientific Fallacies



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Bias against
SUPERNATURAL
causes

Belief that
COMPLEXITY
evolved from
SIMPLICITY

Assumption that
SCIENCE is the
source of TRUTH

REMEMBER THESE THINGS

John 16:13a *But when he, the Spirit of truth, comes, he will guide you into all the truth.*

Wheels make the world go round" is a saying that means: there is **something** so important and essential that even ordinary things wouldn't happen without it. Think of all the ways our lives would be different without wheels, brakes, or anchors. There's no better place for the Lord to be than "at the wheel" of our own life.

