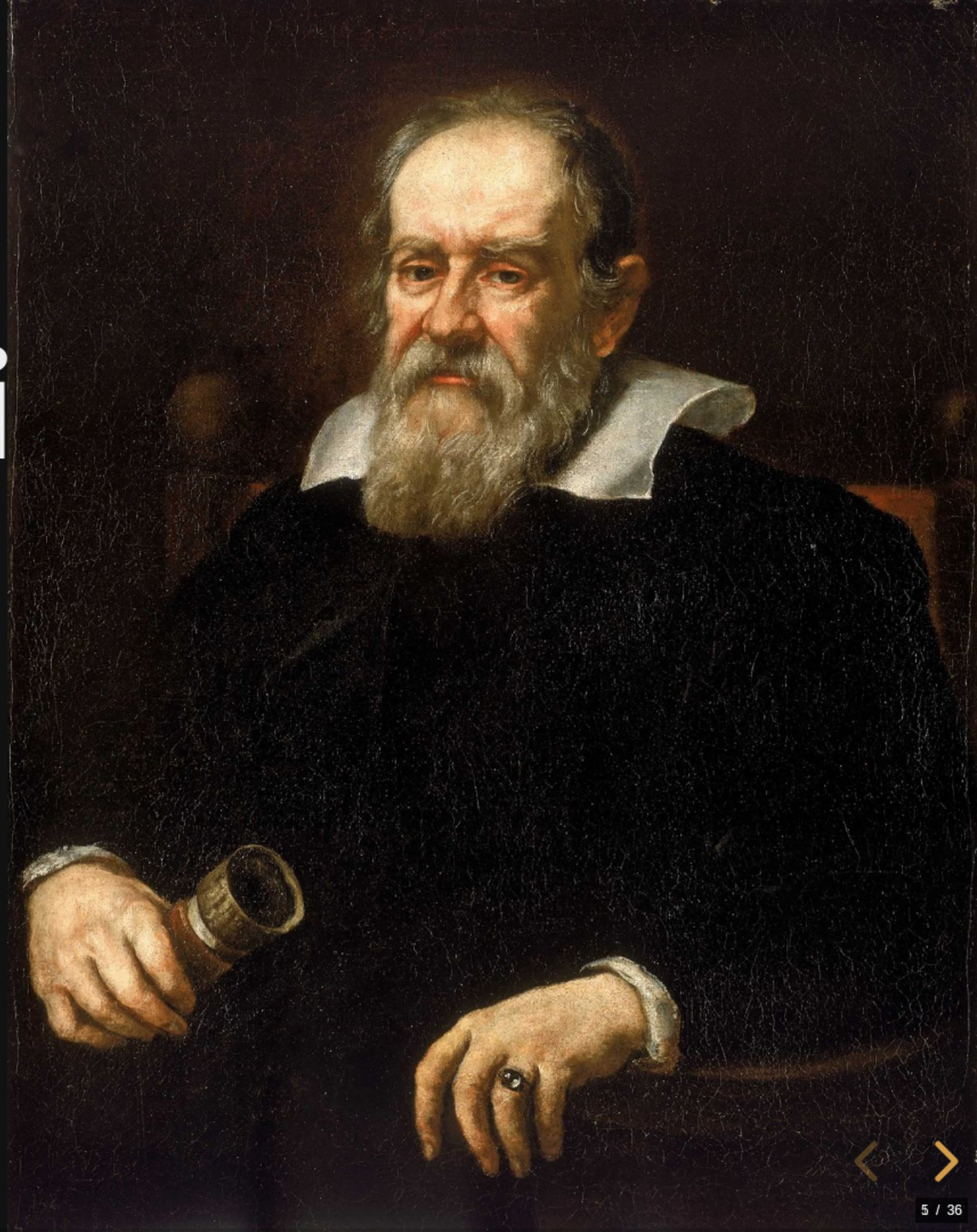
Kinematics


MILAN
VENICE
Torre di Pisa
ROME
Colosseo
NAPOLI
Pompei
CAGLIARI
SICILY
TRAVEL
ITALY
LOREM IPSUM DOLOR SIT AMET, CONSECTETUER ADIPISC
ING ELIT, SED DIAM NONUMMY NIBH EUISMOD TINCIDUNT
UT LAOREET DOLORE MAGNA ALIQUAM ERAT VOLUTPAT.

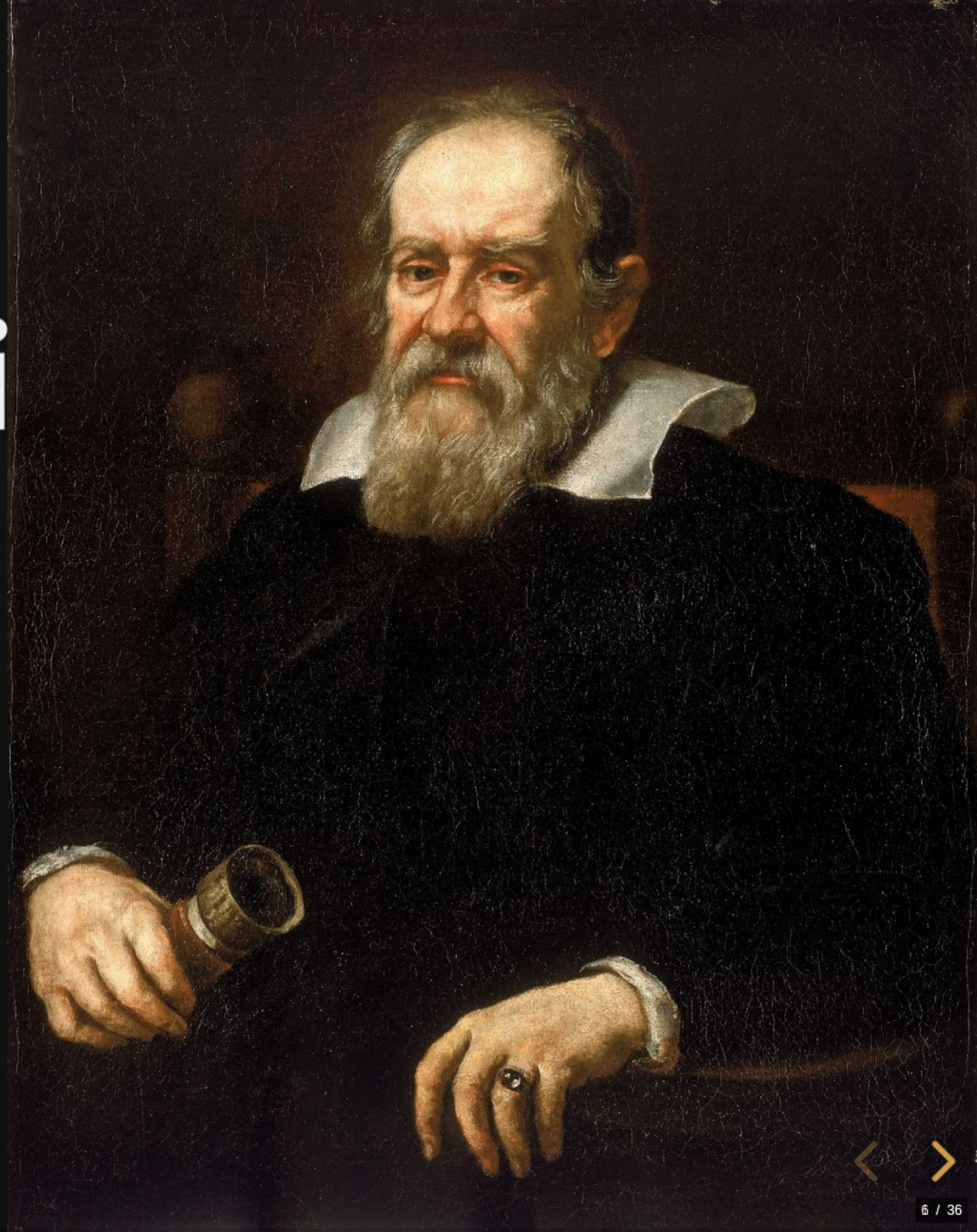
Galileo Galilei

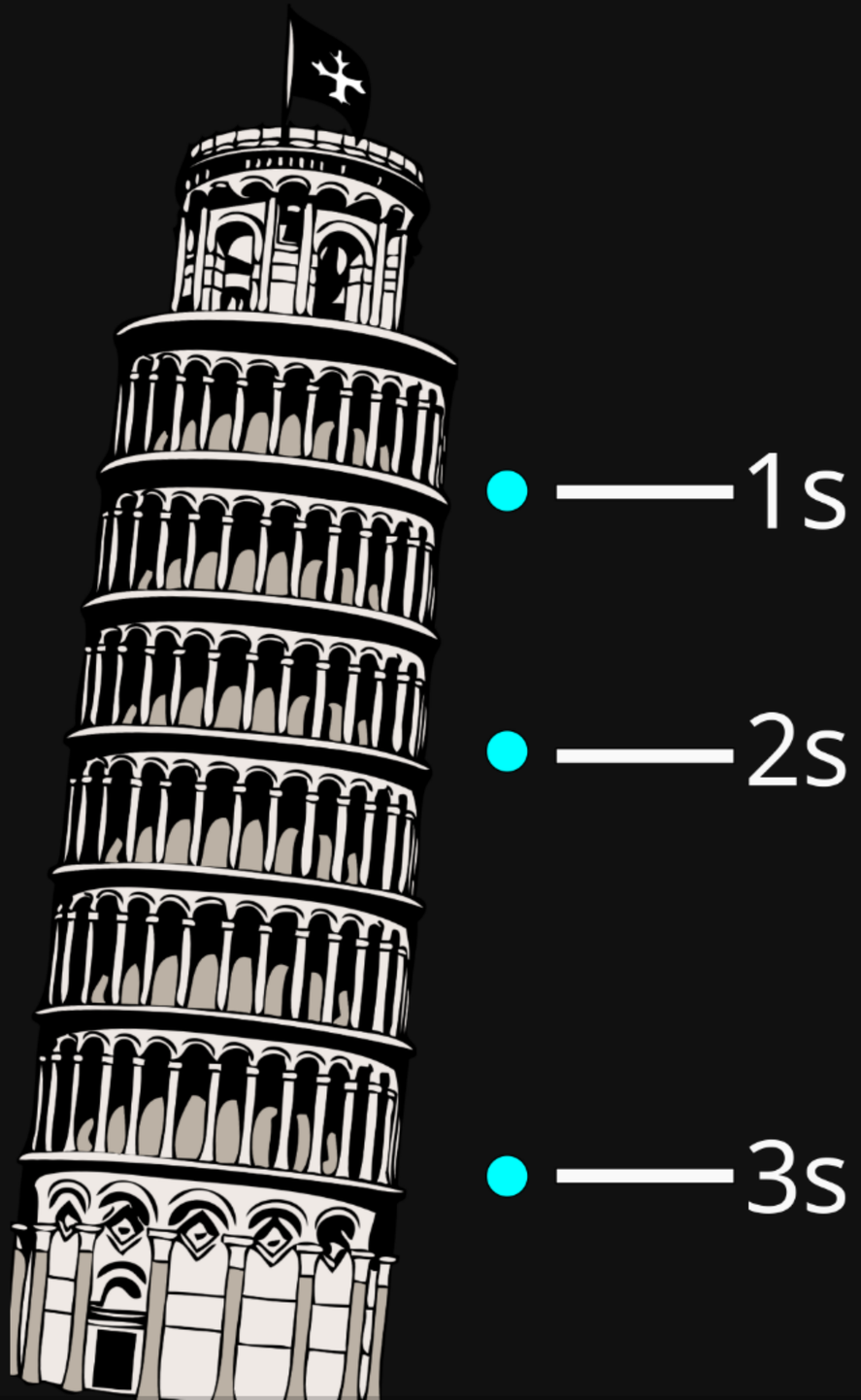
Italian astronomer, physicist and engineer
(1564 – 1642)

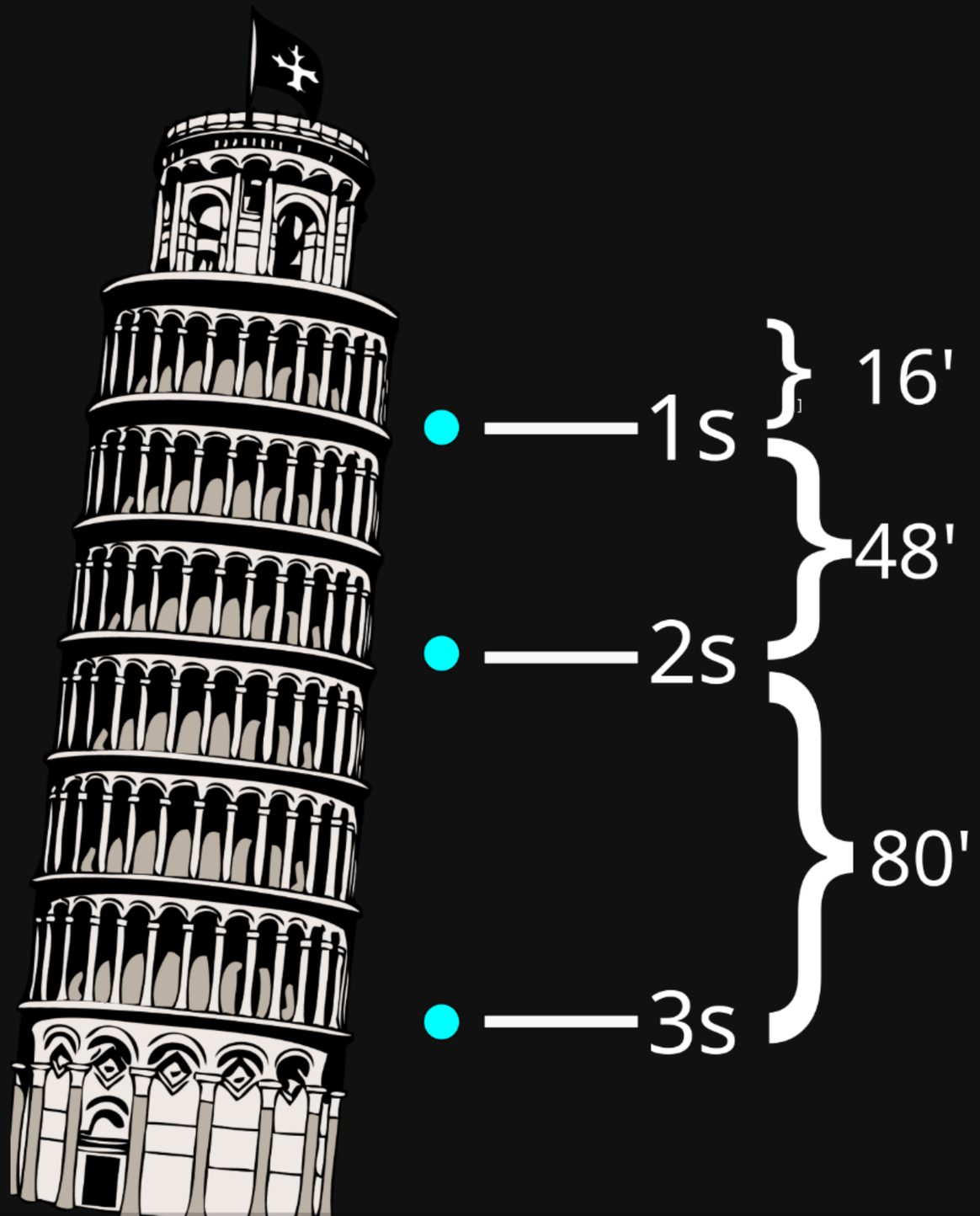


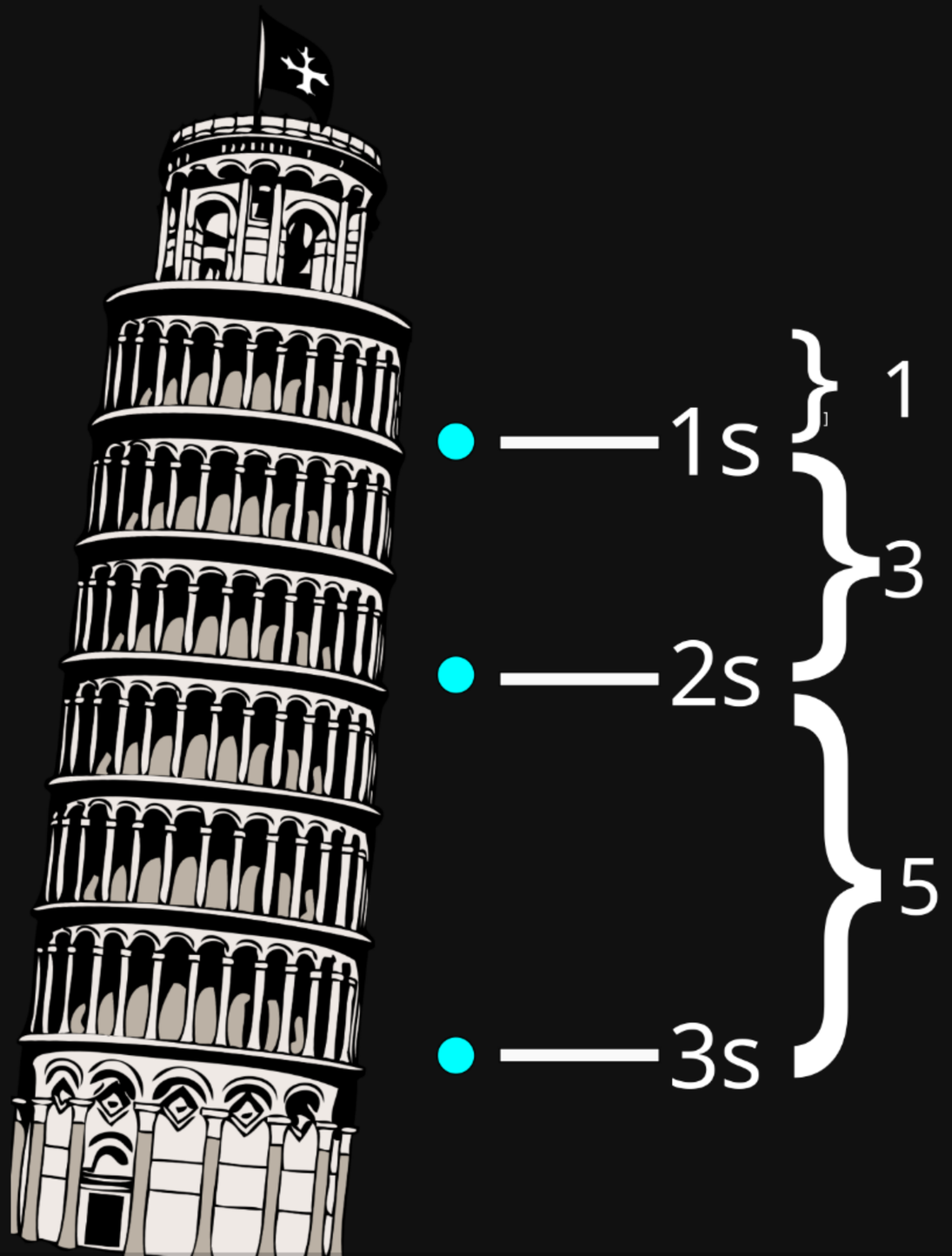
Galileo Galilei

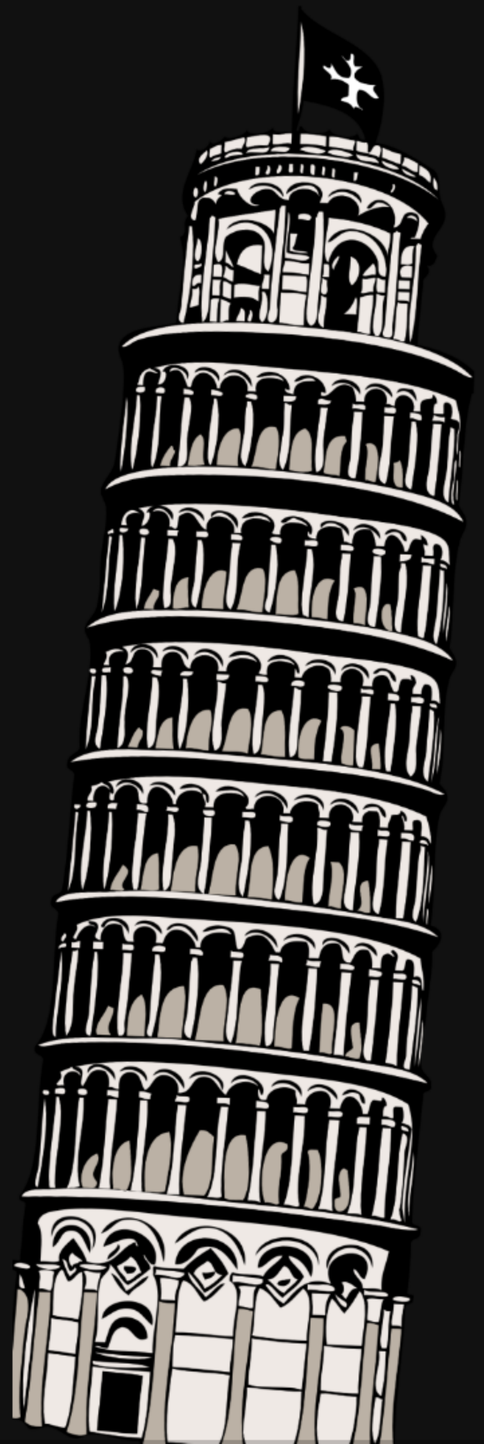
- Speed y velocity
- Gravity y free fall
- Principles of relativity
- Inertia
- Projectiles




1s
2s
3s


1s
2s
3s
16'
48'
80'


1s
2s
3s
1
3
5



1s

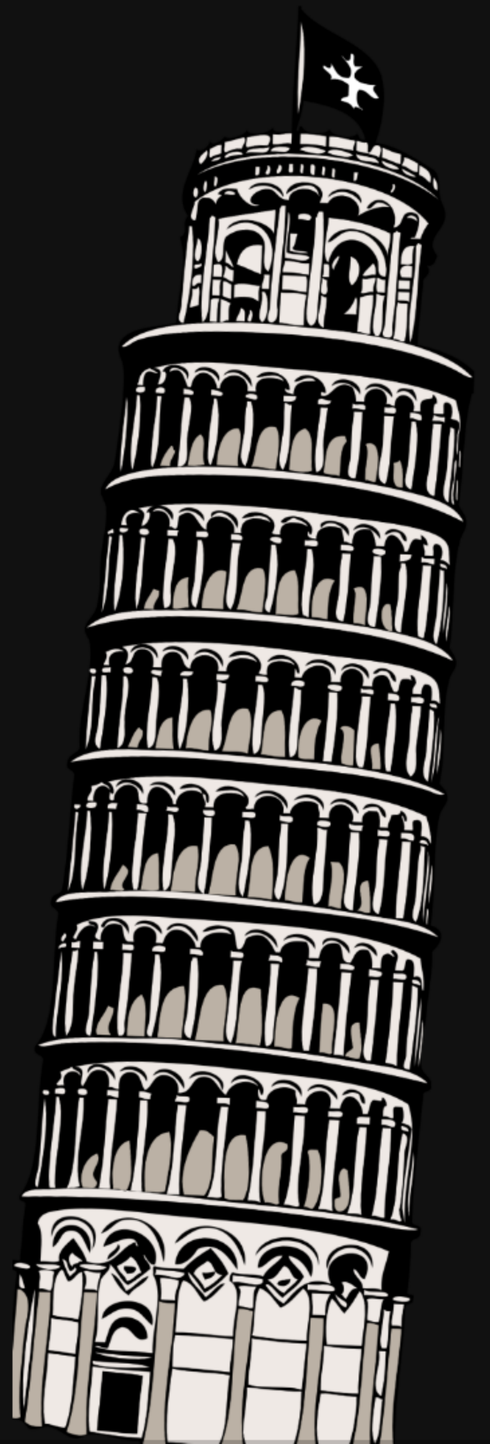
2s

3s

1 1

3 4

5 9



1s

2s

3s

1

3

5

1

2^2

3^2

Is there a relation between the time and the distance of the fall?

Answer

Answer

$$d = \frac{g}{2}t^2$$

Answer

$$d = \frac{9.81 \frac{m}{s^2}}{2} t^2$$

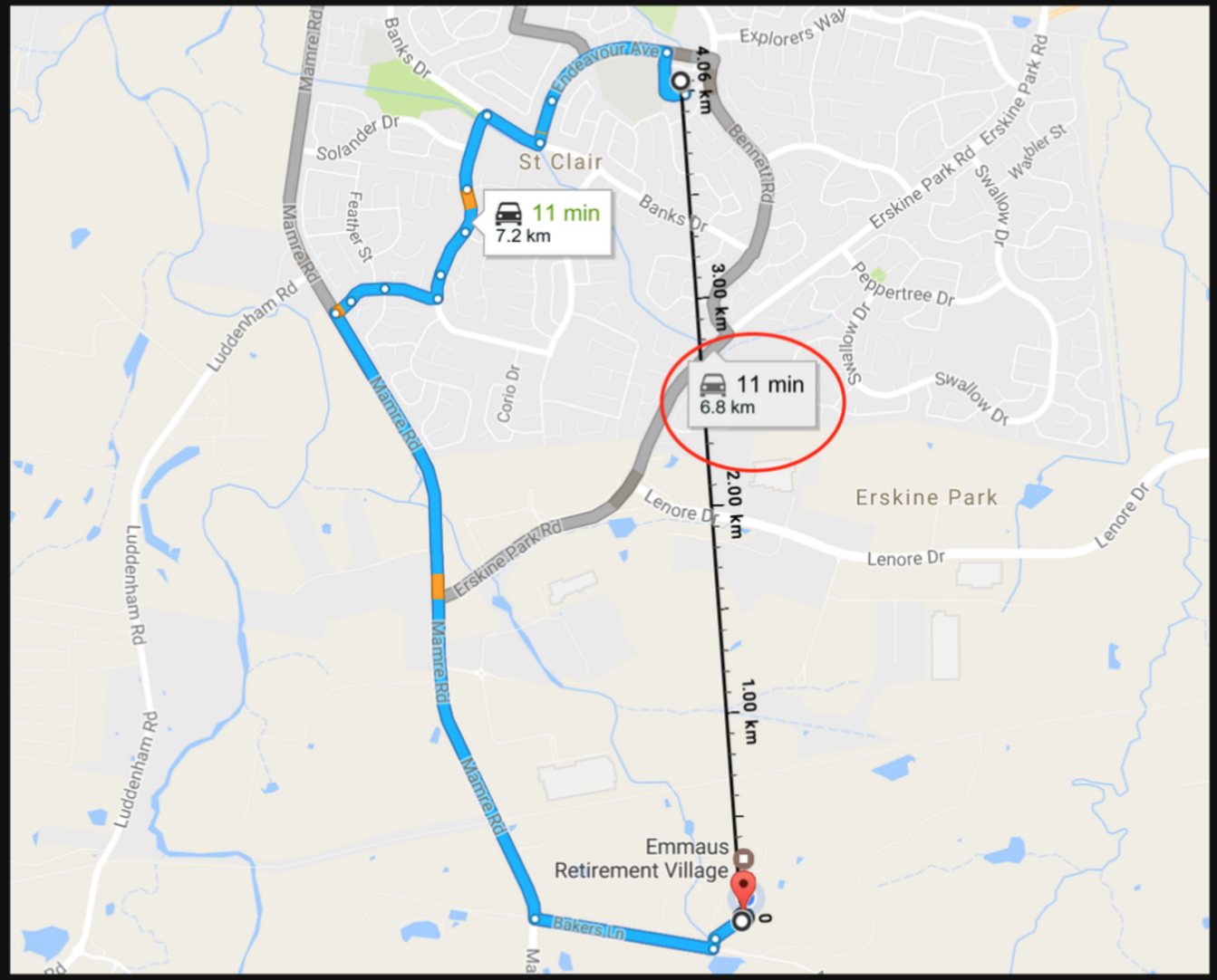
Answer

$$d = 4.9t^2 \ m/s^2$$

Experiment 1

BASIC CONCEPTS

Distance vs displacement



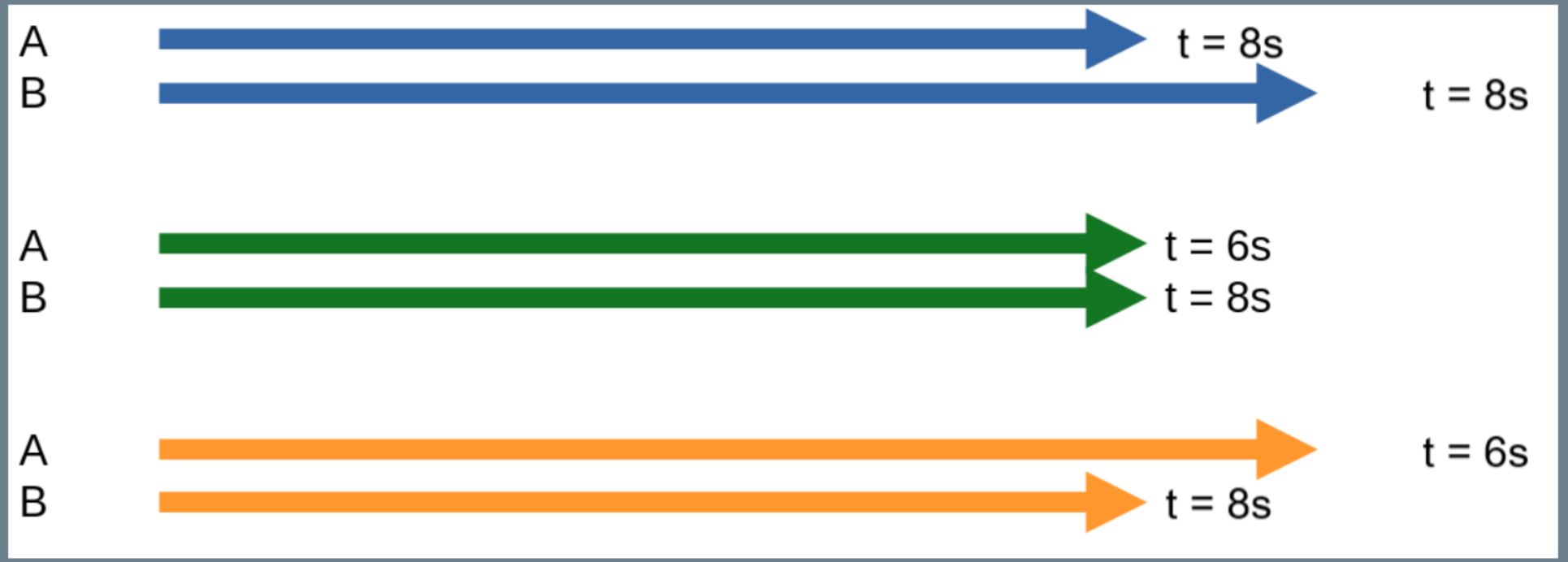
the FASTEST THINGS in the WORLD


$$velocity = \frac{distance}{time}$$
$$v = \frac{[m]}{[s]}$$

Velocity

- Like an arrow, it has:
  - Magnitude
  - Direction
  - Sense

Poll about velocity



Acceleration

Acceleration

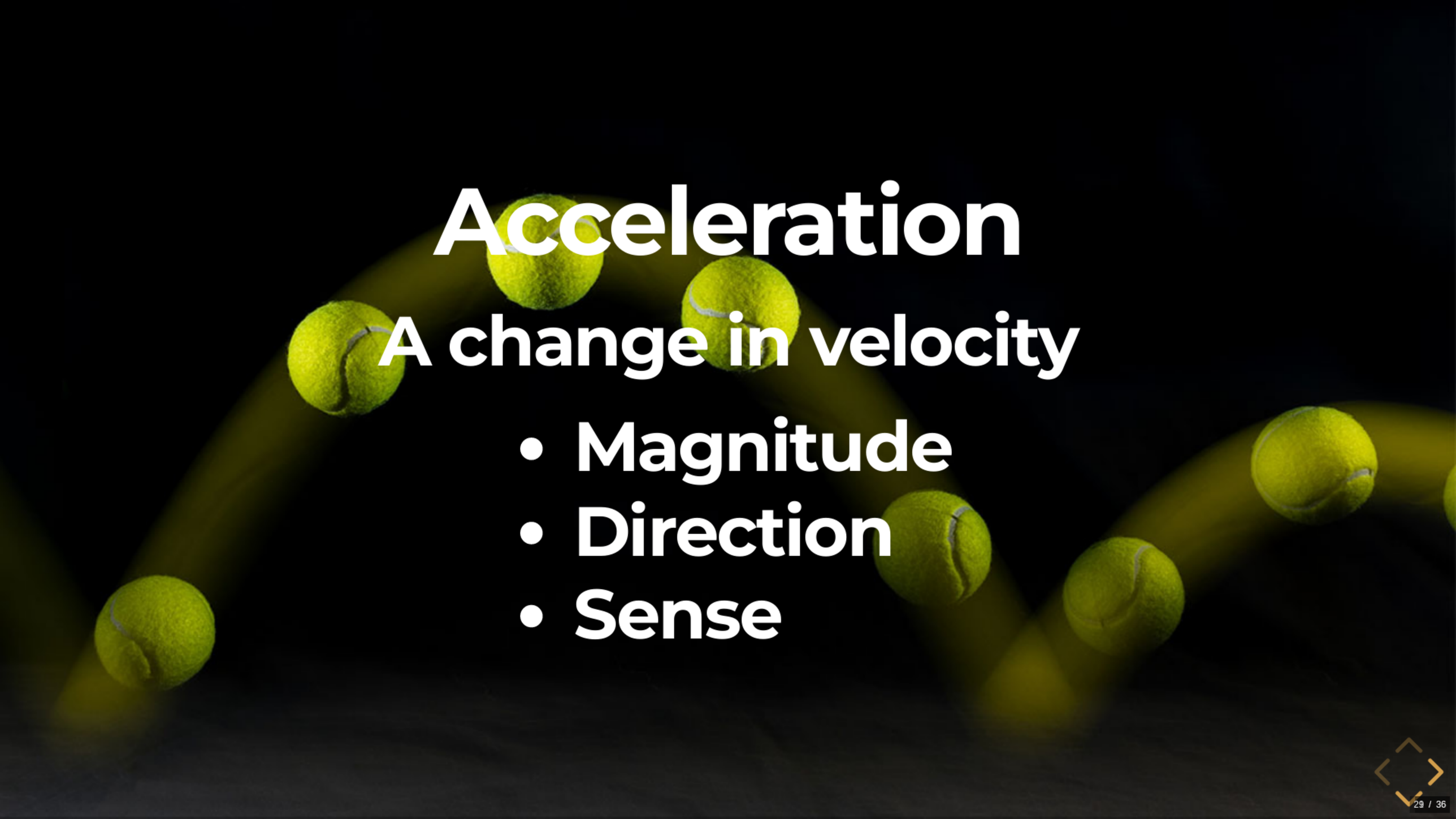
A change in velocity

Acceleration

A change in velocity

- Magnitude


Acceleration
A change in velocity
• Magnitude
• Direction


Acceleration
A change in velocity
• Magnitude
• Direction
• Sense

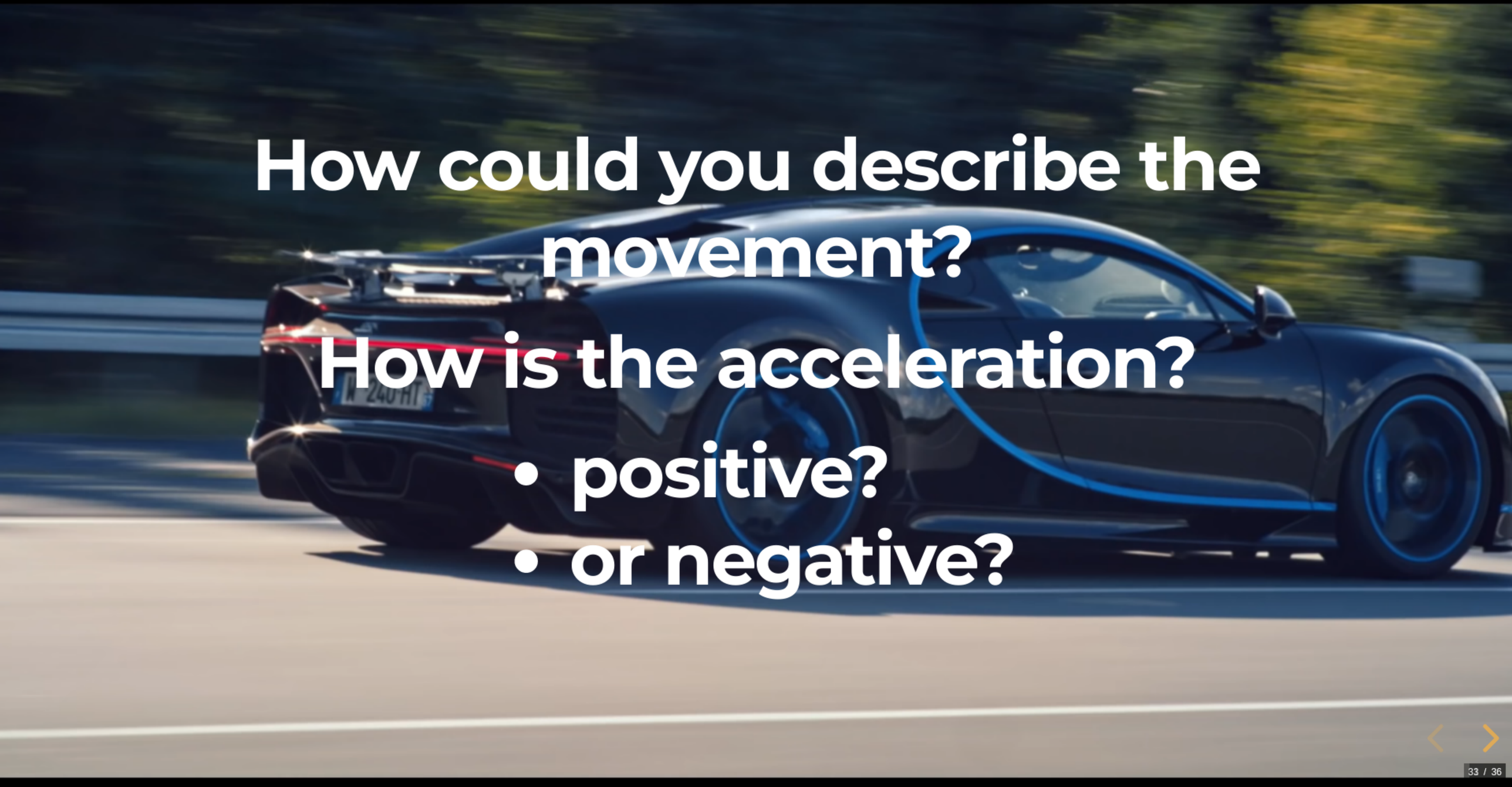
$$a = \frac{v_f - v_i}{t}$$

$$a = \frac{[m]}{[s^2]}$$

BUGATTI Chiron 0-400-0 km/h in 42 seconds – A WORLD RECORD #IAA2017

Copy link

Watch on YouTube



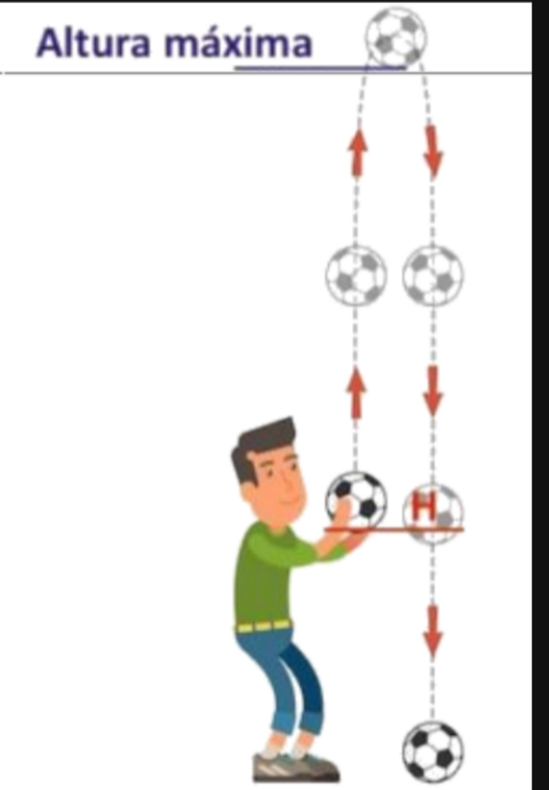
How could you describe the movement?

How is the acceleration?

- positive?
- or negative?

Experiment 2

- ¿Hacia dónde apunta la velocidad cuando la pelota sube?
  - ¿Y la aceleración?
- ¿Hacia dónde de apunta la velocidad cuando la pelota baja?
  - ¿Y la aceleración?



Questions?

Homework