

The background features a dark blue gradient with faint, light blue circular patterns. These patterns include concentric circles, arcs, and radial lines, some of which are marked with degree values such as 150, 160, 170, 180, 190, 200, 210, 220, 230, 240, 250, and 260. The overall aesthetic is technical and mathematical.

LEAVING CERTIFICATE APPLIED MATHEMATICS

WHAT IS APPLIED MATHEMATICS?

The use of mathematics to model, study and solve real-world problems.

Why:

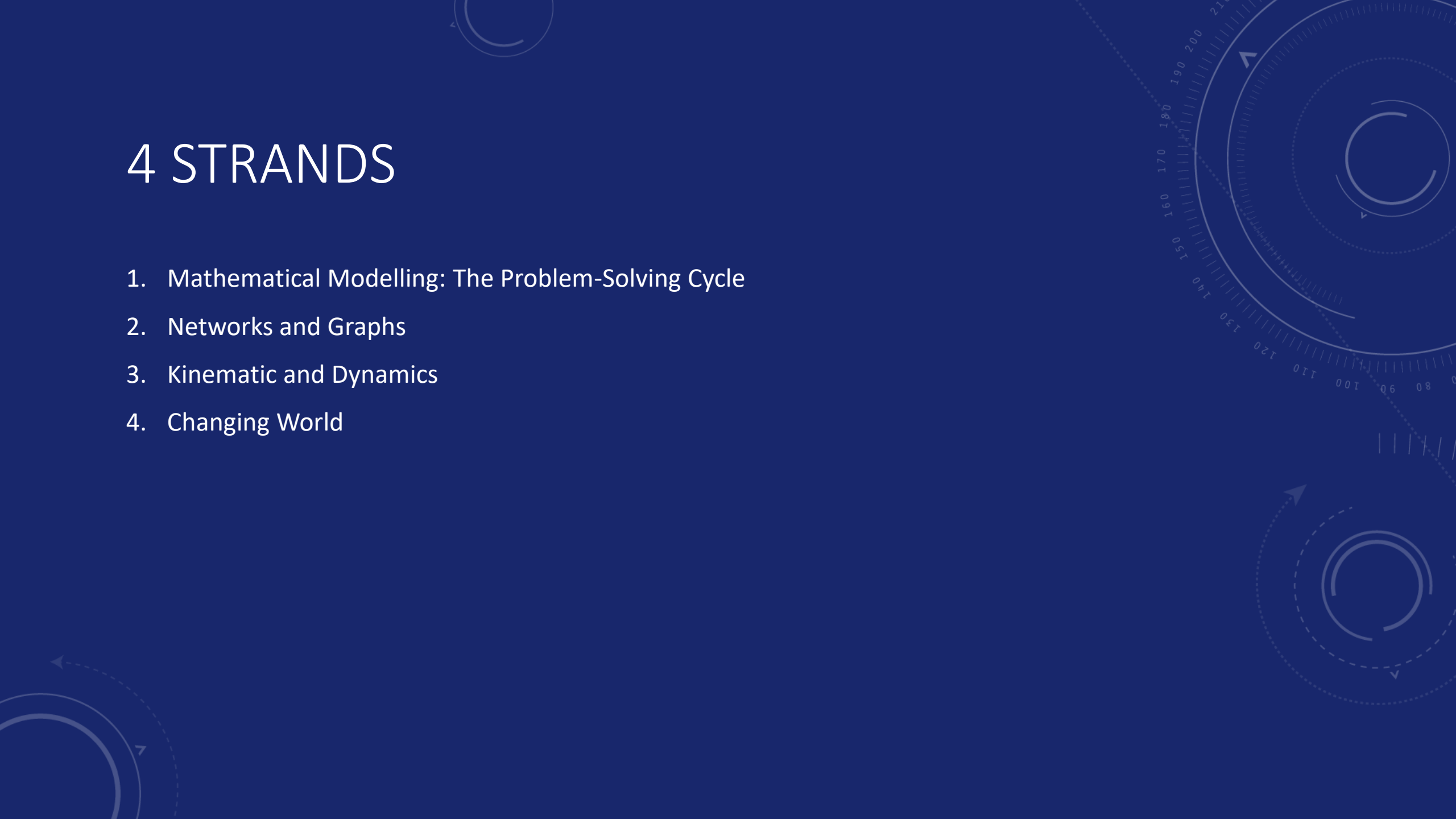
- Represent
- Analyse
- Predict
- Understand

Real-world phenomena.

It is used in theoretical physics, project management, event scheduling, bioinformatics, robotics, image processing, chemistry, finance, economics, engineering and beyond.

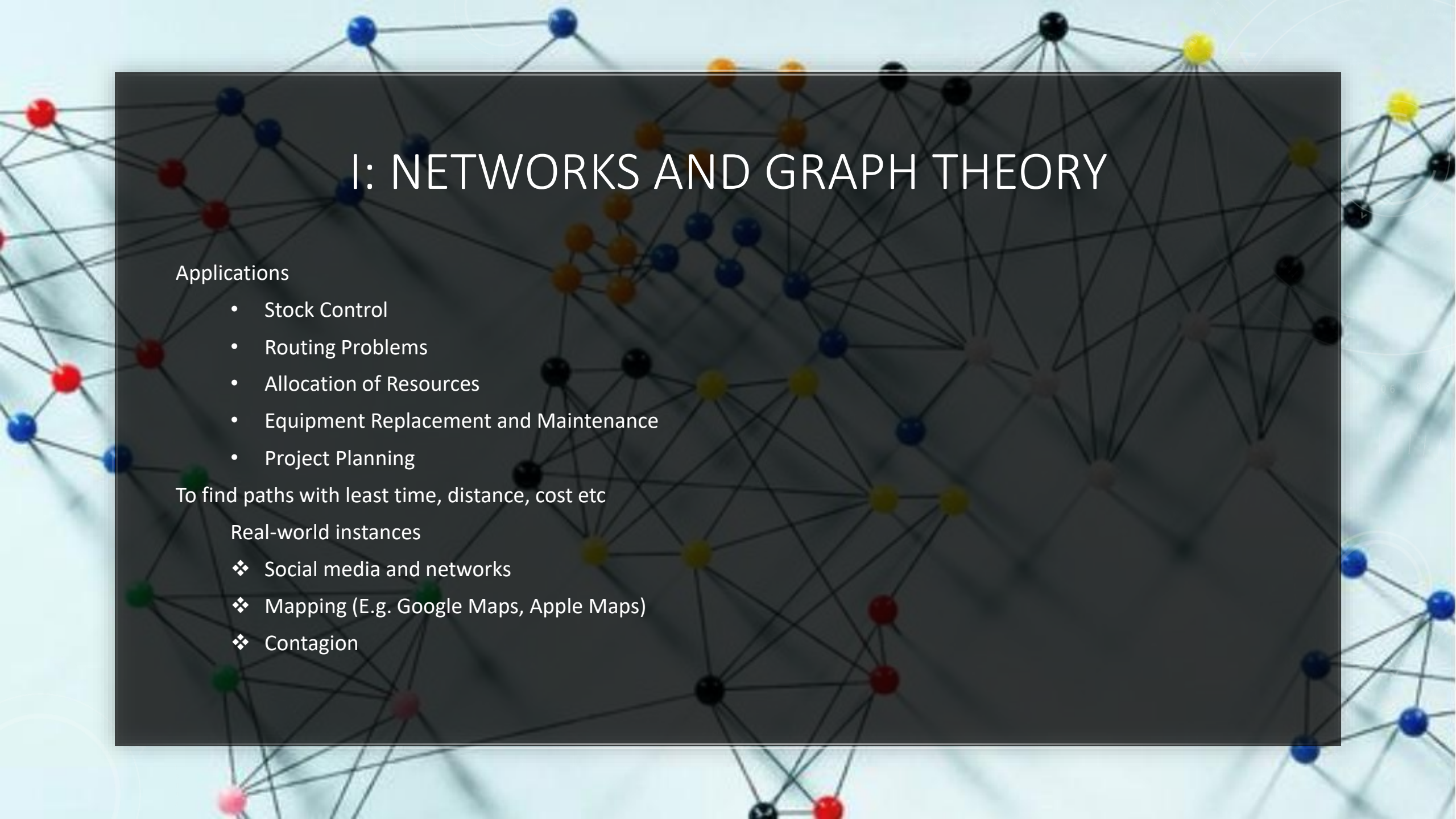
4 STRANDS

1. Mathematical Modelling: The Problem-Solving Cycle
2. Networks and Graphs
3. Kinematic and Dynamics
4. Changing World



MATHEMATICAL MODELLING

- The Problem-Solving Cycle
- Formulate Problem
- Translate Problem into Mathematics
- Compute Solutions
- Evaluate Solutions



I: NETWORKS AND GRAPH THEORY

Applications

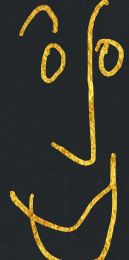
- Stock Control
- Routing Problems
- Allocation of Resources
- Equipment Replacement and Maintenance
- Project Planning

To find paths with least time, distance, cost etc

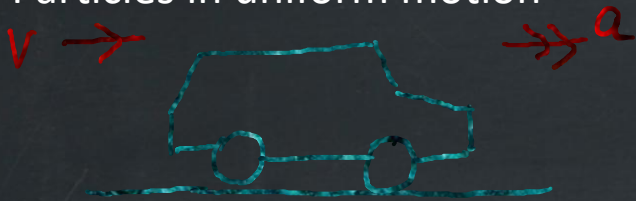
Real-world instances

- ❖ Social media and networks
- ❖ Mapping (E.g. Google Maps, Apple Maps)
- ❖ Contagion

3: KINEMATICS AND DYNAMICS (MECHANICS – MOTION)

This is not art 

- Particles in uniform motion



- Projectiles



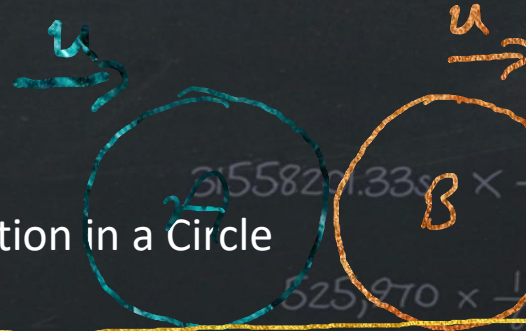
- Forces



- Connected Particles



- Collisions



- Motion in a Circle

$$T = 2\pi \sqrt{\frac{a^3}{\mu}}$$

$$\mu = G \times M(\text{sun})$$

$$T = 2\pi \sqrt{\frac{149,597,887.5^3 \text{ km}}{132,712,440,018 \text{ km}^3 \text{ s}^{-2}}}$$

$$T = 2\pi (5022643.737) \text{ s}$$

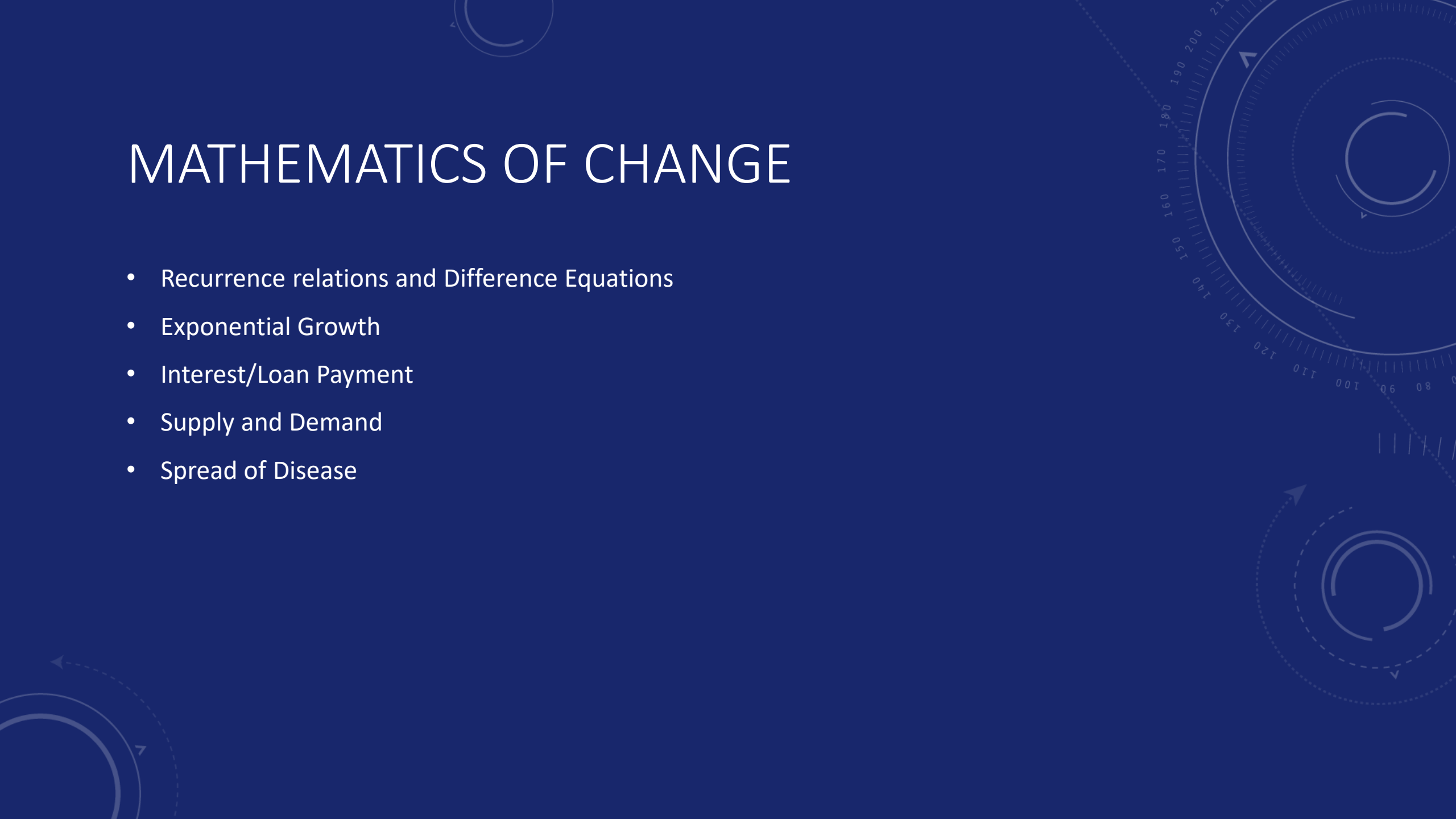
$$T = 31558201.33 \text{ seconds}$$

$$31558201.33 \text{ s} \times \frac{1 \text{ minute}}{60 \text{ seconds}} = 525,970 \text{ minutes}$$

$$525,970 \times \frac{1 \text{ hour}}{60 \text{ minutes}} \times \frac{1 \text{ day}}{24 \text{ hours}} = 365.25$$

MATHEMATICS OF CHANGE

- Recurrence relations and Difference Equations
- Exponential Growth
- Interest/Loan Payment
- Supply and Demand
- Spread of Disease



ASSESSMENT



PROJECT: 20% - 20
HOURS, 6TH YEAR



WRITTEN
EXAMINATION: 80%

- Are you interested in mathematics?
- Do you enjoy mathematics?
- Do you like the idea of applying mathematics to real-life problems?
- Have you reasonably well-developed mathematical capabilities? (Solving equations, trigonometry)

Further Information:

[Senior Cycle Applied Maths | PDST](#)

Specification:

[Leaving-Certificate-Specification-Applied-Mathematics EN 2.pdf](#)

Contact Mr Kenny

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WHO SHOULD STUDY APPLIED MATHS?

