

## Summary

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- In this term you revised syringe mechanics using two equal sized syringes linked by a tube. You observed force transfer between the syringes filled with compressed air and water – a pneumatic and a hydraulic system.
- You carried out action research and experimented with two different sized syringes; and you learned about Pascal's Principle.
- You investigated a hydraulic press and a hydraulic jack and evaluated the design. You also drew a systems diagram which described the way a hydraulic jack works.
- You continued with further investigations into pulleys, and mechanical control systems (ratchet and pawl, disc brake, bicycle brake and cleat).
- You revised spur gears and learned about bevel gears, rack-and-pinion gears and worm gears.
- You examined various items using mechanisms found in the modern kitchen and/or home, workshop/garage and drew single vanishing point perspectives.
- In the Mini-PAT you designed a mechanical, electrical, hydraulic or pneumatic solution to a problem. You designed a brief, drew a plan, made a prototype and presented your solution.

## Questions

- 6 Make a free-hand sketch of a single wheel fixed pulley. Show the following on the drawing:
- the pulley
  - the load
  - the lifting force (effort)
- 7 Single fixed pulley: Why will the weight (load) drop downwards if you release your effort (force) on the string?
- 8 What gear system will allow a ratchet screwdriver to turn to one side at a time?
- 9 To which category will a disc brake belong – electrical system, mechanical system or a pneumatic system?
- 10 What system is used to enable bicycle brakes to be adjusted?
- 11 Will pressure play an important role in the braking systems of vehicles and bicycles?
- 12 The purpose of the idler gear is to s \_\_\_\_\_ e or to cause to operate with exact coincidence in time or rate.
- 13 What is the name of the gear system shown below?



- 14 Does the gear system below make use of bevel gears?



- 15 What type of mechanical system is used to move a heavy steel gate at a slow speed?

## **Answers**

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