Summary

- 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.

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Questions

16 What other gear system is used to move a steel gate at a slow speed?

17 Name five constraints you had to keep in mind when you wrote your design brief.

18 What is meant by a pneumatic system?

19 Name the three views we have to do in first angle projection drawings.

20 Are first angle orthographic projection drawings 2D or 3D drawings?

21 Describe how to work with the following tools:

- **21.1** pliers
- **21.2** ruler to measure
- **21.3** cutting knife
- **21.4** a punch.

22 Why is good outlay planning on your material choices so important?

23 Why will a lack of making skills spoil your project?

24 Explain the following movements and give an example of each:

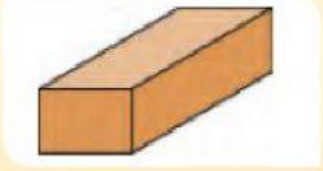
- **24.1** continuous movement in a straight line
- **24.2** rotary movement
- **24.3** oscillating movement
- **24.4** reciprocating movement.

25 Explain how a mechanism can increase the speed of a bicycle?

26 Select three items to be found in a modern kitchen. Write a report on one of the items. Include the following in your report:

- Who is it for?
- What is it for?
- Will it do the job?
- What material is it made of?
- Is the material suitable?
- What should it cost?
- Does it look good?
- Is it safe to use?

27 Use single vanishing point perspective to draw the following object. Enhance the drawing by showing the texture of the wood grain, and shadows.



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Answers

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