

SECTION A

1. **B. Acquiring practical skills for problem-solving and innovation.**
2. **C.** ( marking gauge which are appropriate for precise marking on timber.
3. **B. Cutting plane line - Long chain thin line, thickened at ends**
4. **C. Aluminum alloy.**
5. **C.** (G-clamp or welding clamp, suitable for temporarily holding metal pieces for welding).
6. **B. Safety goggles.**
7. **C. Cement.**
8. **C. Cover the cutting edge with a guard or sheath.**
9. **C. Porcelain, glass, tiles.**
10. **C. Sheet metal.** (large, heavy-duty scissors designed for cutting sheet materials ).
11. **C. Leaving flammable materials near heat sources.**
12. **C. Starving, smothering, cooling.**
13. **C. Pipe wrench.**
14. **C. Reduce environmental pollution and conserve resources.**
15. **B. Broad leaves, slow growth, dense structure.**
16. **C. Possessing strong leadership and risk-taking abilities.**
17. **C. High operating costs (e.g., rent, competition).**
18. **C. Ksh 170,000** (Owner's Capital = Assets - Liabilities = (200,000 + 50,000) - 80,000 = 250,000 - 80,000 = 170,000)
19. **B. Passive income.**
20. **C. Spent money without tracking where it went.**
21. **B. Offering credit facilities.**
22. **B. Analyzing trends and identifying unmet customer needs.**
23. **A.** (computer mouse, which is a pointing device).
24. **C. Desktop computer.**
25. **B. Touching exposed wires or components.**
26. **B. Using complex, unique passwords and two-factor authentication.**
27. **B. Shift key.**
28. **C. Application software.**
29. **C. Visual programming environment.**
30. **A.**

SECTION B

**Task 1: Technical Drawing & Materials**

**31. Differences between Softwood and Hardwood**

<b>Softwood</b>	<b>Hardwood</b>
1. Comes from coniferous trees (e.g., pine, cedar, spruce). Often has needles and cones.	1. Comes from deciduous trees (e.g., oak, mahogany, maple). Typically has broad leaves that shed seasonally.
2. Generally grows faster.	2. Generally grows slower.

3. Less dense and softer.	3. More dense and harder.
4. Lighter in color.	4. Darker in color.
5. Easier to work with (cut, shape, nail).	5. More challenging to work with due to its density.
6. Less resistant to decay and pests (unless treated).	6. More resistant to decay and pests.
7. Less expensive.	7. More expensive.
8. Used for construction lumber, paper pulp, and temporary structures.	8. Used for furniture, flooring, high-quality finishes, and specialized structures.

### 31a. Examples of Hardwood Trees in Kenya

1. Mahogany
2. Mvule
3. Muringa
4. Camphor
5. Podocarpus (Podo)
6. Rosewood
7. Elgon teak
8. Meru oak
9. Pencil Cedar
10. African olive
11. African black wood
12. Muhuhu
13. Croton megalocarpus
14. Maesopsis eminii
15. Pterocarpus angolensis
16. Acacia species
17. Grevillea robusta
18. Albizia
19. Combretum
20. Erythrina
21. Terminalia etc

### 32. Reduce the rectangular shape above to a scale of 1:2.

*Learners should be able to reduce the image appropriately*

To reduce a rectangular shape measuring 10 cm by 5 cm to a scale of 1:2, you need to divide each dimension by 2.

- New length =  $10 \text{ cm} / 2 = 5 \text{ cm}$
- New width =  $5 \text{ cm} / 2 = 2.5 \text{ cm}$

#### Drawing Instructions:

1. Using a ruler, draw a horizontal line segment that is **5 cm** long.
2. At each end of the 5 cm line, draw a vertical line segment that is **2.5 cm** long, ensuring they are perpendicular to the first line.
3. Connect the top ends of the two vertical lines with another horizontal line segment that is **5 cm** long, parallel to the first horizontal line.

This will result in a rectangle with dimensions 5 cm by 2.5 cm.

**33. Identify parts P and Q and state two uses of the tool.**

**a) Identify the parts labeled P and Q.**

- **P:** Jaws/load position - This is the part used for cutting wires.
- **Q:** handle /effort position -. This is the part used for holding.

**b) State two uses of the tool shown above.**

- i. **Gripping and holding objects:** Pliers are excellent for securely holding small parts, nuts, bolts, or wires during assembly, disassembly, or other tasks.
- ii. **Cutting wires:** The cutting edges (Q) allow for precise and efficient cutting of electrical wires, cables, or other soft metal wires.
- iii. **Bending and shaping wires:** The jaws can be used to bend and manipulate wires into desired shapes for electrical installations or craft projects.
- iv. **Stripping insulation from wires:** Some pliers have specialized sections within the jaws for stripping the insulation off electrical wires without damaging the conductor.
- v. **Loosening or tightening small nuts and bolts:** While not as ideal as a wrench, pliers can sometimes be used to grip and turn small nuts and bolts, especially if they are not very tight.

**34. Non-metallic materials that can be recycled and items made from them.**

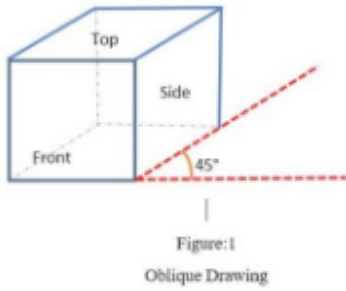
**a) Give two non-metallic materials that can be recycled.**

- i. **Plastics**
- ii. **Glass**
- iii. **Paper/Cardboard**
- iv. **Textiles/Fabrics**
- v. **Rubber**

**b) Name one item that can be made from each material identified in 34(a).**

- i. **Plastics:**
  - a. From plastic bottles: **Fleece jackets, outdoor furniture, new plastic bottles, drainage pipes.**
  - b. From plastic containers: **Flower pots, storage bins, playground equipment.**
- ii. **Glass:**
  - a. From glass bottles/jars: **New glass bottles/jars, glass tiles, fiberglass insulation, decorative aggregates.**
- iii. **Paper/Cardboard:**
  - a. From newspapers/magazines: **Newspapers, paper towels, egg cartons, insulation.**
  - b. From cardboard boxes: **New cardboard boxes, paperboard, packaging materials.**
- iv. **Textiles/Fabrics:**
  - a. From old clothes/fabric scraps: **Cleaning rags, insulation, car seat stuffing, industrial wiping cloths.**
- v. **Rubber:**
  - a. From old tires: **Playground surfaces, speed bumps, floor mats, new tire components.**

**35. Freehand sketch of a cube whose side is 3.0 cm in oblique projection.**



### Instructions for Freehand Oblique Sketch of a Cube (3.0 cm side):

- i. **Draw the Front Face:** Start by drawing a perfect square that is approximately 3 cm by 3 cm. This will represent the front face of your cube. Try to make the lines as straight as possible without a ruler.
- ii. **Draw Receding Lines:** From each corner of the front square, draw a parallel line extending backward and to the side. These lines should be at an angle (commonly 30 or 45 degrees, but for freehand, consistency is key) and about half the actual length (so, approximately 1.5 cm) to give the illusion of depth. This is typical for cavalier or cabinet oblique projection, where lines receding into depth are either full scale or half scale. For a basic freehand sketch, just ensure they are noticeably shorter than the front face's side to create depth.
- iii. **Draw the Back Face:** Connect the ends of these receding lines to form the back square. The lines of the back square should be parallel to the lines of the front square.
- iv. **Refine Lines (Optional but Recommended):** Go over your lines to make them clearer and darker where appropriate, enhancing the 3D effect.

### Key characteristics of an oblique projection sketch of a cube:

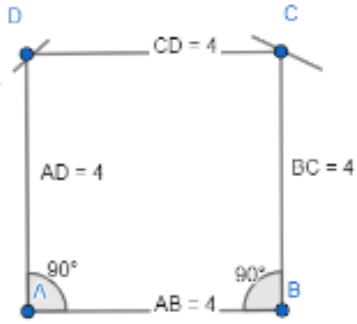
- i. One face (the front face) is drawn in its true shape and size.
- ii. The receding lines are parallel to each other and drawn at a consistent angle (e.g., 30°, 45°, or 60°).
- iii. The length of the receding lines can be full scale (cavalier projection) or half scale (cabinet projection) to represent depth. For a freehand sketch, showing some foreshortening (shorter length) is usually effective.

### 36. Reasons for seasoning timber.

Seasoning timber is the process of reducing its moisture content to an acceptable level. This is crucial for several reasons:

- i. **To prevent warping, twisting, and cracking:** As timber dries, it shrinks. If this shrinkage occurs unevenly, the timber can warp, twist, or crack, making it unsuitable for construction or furniture. Seasoning ensures stable dimensions and prevents these defects after the timber is in use.
- ii. **To improve strength and durability:** Dry timber is significantly stronger and more stable than green (unseasoned) timber. It has better resistance to bending, compression, and shear forces, making it more durable and reliable for its intended purpose.
- iii. **To increase resistance to decay, fungal growth, and insect attacks:** High moisture content provides an ideal environment for fungi (which cause rot and decay) and wood-boring insects. Seasoning removes this moisture, making the timber less susceptible to biological degradation and extending its lifespan.
- iv. **To reduce weight for easier handling and transportation:** Water makes timber heavy. Removing moisture during seasoning reduces the overall weight of the timber, making it easier and cheaper to handle, transport, and work with.
- v. **To improve workability and finishing properties:** Seasoned timber is easier to cut, plane, drill, and shape. It also holds fasteners (nails, screws) better and accepts finishes like paint, varnish, and glue more effectively and uniformly.

### 37. Construct a square of length 4 cm.



### Instructions for Constructing a Square of Length 4 cm:

**Materials needed:** Pencil, ruler, compass, protractor (optional, for checking right angles).

#### Steps:

1. **Draw a base line:** Using a ruler, draw a straight horizontal line segment AB that is exactly **4 cm** long.
2. **Construct a perpendicular at one end:**
  - i. Place the compass point at A.
  - ii. Draw an arc that intersects line AB (let's call the intersection point X).
  - iii. Without changing the compass width, place the point at X and draw another arc intersecting the first arc (call it Y).
  - iv. Place the compass point at Y and draw a third arc intersecting the first arc (call it Z).
  - v. From Y and Z, draw two arcs that intersect each other above line AB (call the intersection point M).
  - vi. Draw a straight line from A through M. This line AM will be perpendicular to AB.
3. **Mark the height:**
  - i. Open your compass to **4 cm** (the length of AB).
  - ii. Place the compass point at A and draw an arc that intersects the perpendicular line AM. Label this intersection point D. Now, AD is 4 cm.
4. **Complete the square:**
  - i. Place the compass point at D and draw an arc of 4 cm.
  - ii. Place the compass point at B and draw another arc of 4 cm, intersecting the arc from D. Label this intersection point C.
  - iii. Draw straight lines to connect BC and CD.

You will now have a square ABCD with all sides measuring 4 cm and all angles being 90 degrees.

### Task 2: Business & Entrepreneurship

#### 38. Factors for comparing the size of factories.

When comparing the size of factories, Grade 7 learners might consider:

- i. **Number of Employees:** A larger factory typically employs more people than a smaller one. This is a common and easily observable metric.
- ii. **Production Capacity/Output:** The volume of goods produced or services rendered over a given period. A larger factory would generally have a higher output (e.g., more cars produced per day, more juice bottles filled per hour).
- iii. **Physical Size/Floor Area:** The total area occupied by the factory buildings, workshops, and storage facilities. A larger factory would have a significantly bigger footprint.
- iv. **Capital Investment/Asset Value:** The monetary value of the machinery, equipment, buildings, and land owned by the factory. Larger factories usually involve significantly higher capital investment.
- v. **Sales Turnover/Revenue:** The total value of goods sold or services provided over a period. A larger factory would typically generate higher revenue.
- vi. **Number of Production Lines/Machines:** A larger factory might have multiple production lines or a greater number of specialized machines compared to a smaller one.

### 39. Kamau's Income Statement for the year ending 31st December 2023.

**Kamau's Fruit Vendor Business  
Income Statement  
For the Year Ended 31st December 2023**

Item	Amount (Ksh)	Calculation
<b>Revenue</b>	<b>50,000</b>	
Less: Cost of Sales	(20,000)	
<b>Gross Profit</b>	<b>30,000</b>	50,000 - 20,000
<b>Less: Operating Expenses</b>		
Rent	6,000	
Salaries	10,000	
Transport expenses	1,500	
<b>Total Operating Expenses</b>	<b>(17,500)</b>	6,000 + 10,000 + 1,500
<b>Net Profit</b>	<b>12,500</b>	30,000 - 17,500

### 40. Government protection for consumers against exploitation.

The government of Kenya protects consumers against exploitation through various measures, including:

- i. **Establishing Consumer Protection Laws and Regulatory Bodies:** The government enacts laws like the **Consumer Protection Act, 2012**, which outlines consumer rights, prohibits unfair trade practices, and provides avenues for redress. Regulatory bodies such as the **Competition Authority of Kenya (CAK)**, **Kenya Bureau of Standards (KEBS)**, and the **Communications Authority of Kenya (CAK)** enforce these laws, investigate complaints, and impose penalties on businesses engaged in exploitative practices.
- ii. **Setting Standards and Quality Control:** Through institutions like KEBS, the government establishes and enforces standards for products and services. This ensures that goods sold meet certain quality, safety, and performance benchmarks, protecting consumers from substandard or harmful products. Products that meet these standards are often marked with a standardization mark.
- iii. **Price Controls and Monitoring (where applicable):** In certain essential sectors, the government may impose price controls or monitor prices to prevent excessive profiteering and ensure affordability. While not widespread, it can be used in specific situations to protect consumers from exorbitant pricing, especially during crises or for basic commodities.
- iv. **Promoting Consumer Awareness and Education:** The government, often through relevant agencies, conducts campaigns and educational programs to inform consumers about their rights and responsibilities. Empowered consumers are better equipped to identify and challenge exploitative practices.
- v. **Providing Avenues for Redress and Dispute Resolution:** Consumers who feel exploited can file complaints with relevant government bodies or courts. These bodies provide mechanisms for mediating disputes,

investigating claims, and ensuring that consumers receive fair compensation or resolution. Examples include the Small Claims Court and tribunals.

#### 41. Factors Mwanesi should consider when selecting a suitable market for the juice.

Mwanesi should consider the following factors when selecting a suitable market for her juice:

- i. **Target Customer Demographics and Needs:** Who are her potential customers? Factors like age group, income level, lifestyle, dietary preferences (e.g., health-conscious, natural ingredients), and cultural background will influence demand for her juice. She needs to identify unmet needs or preferences that her juice can satisfy.
- ii. **Market Size and Growth Potential:** Is the chosen market large enough to sustain her business, and is it growing? A market with a growing consumer base for healthy beverages or specific juice flavors offers more opportunities for long-term success.
- iii. **Competition Analysis:** Who are the existing competitors, what products do they offer, what are their pricing strategies, and what are their strengths and weaknesses? Understanding the competitive landscape will help Mwanesi differentiate her product and identify unique selling propositions.
- iv. **Accessibility and Distribution Channels:** How will she get her juice to the customers? This involves considering logistics, transportation costs, and suitable distribution channels (e.g., direct sales, local shops, supermarkets, online platforms). The market should be geographically accessible and have viable distribution networks.
- v. **Regulatory Environment and Licensing:** What are the food safety regulations, labeling requirements, and business licenses needed to operate in that market? Compliance with these regulations is essential for legal operation and consumer trust.
- vi. **Pricing Sensitivity and Purchasing Power:** Are potential customers in the market willing and able to pay the price she plans to charge for her juice? She needs to understand the economic conditions and purchasing power of the target market.

#### 42. Abel's financial goals.

a) Use the information above to formulate Abel's financial goals by filling in the following table.

Goal	Time frame	Amount required	Action plan
Buy a smartphone	Four months	Ksh 18,000	Save Ksh 5,000 per month

b) Outline one benefit that Abel will get from setting his financial goal.

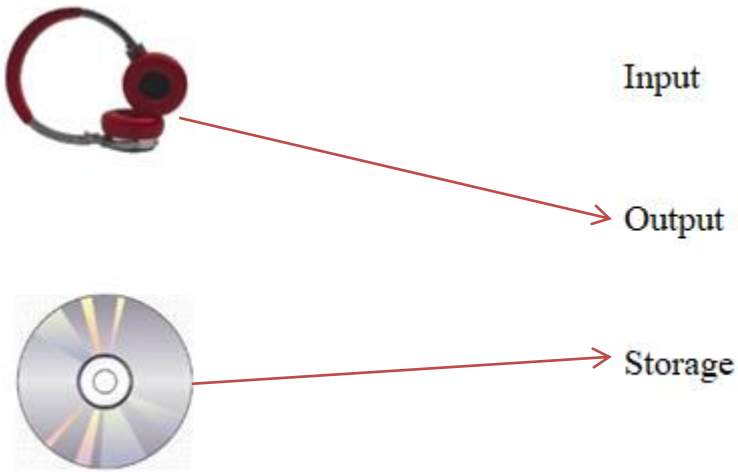
- i. **Clarity and Direction:** Setting a specific financial goal provides Abel with a clear target and a roadmap, making his saving efforts purposeful rather than random.
- ii. **Motivation and Discipline:** Knowing exactly what he's saving for and by when motivates him to stick to his saving plan (Ksh 5,000 per month) and avoid impulsive spending.
- iii. **Improved Financial Decision-Making:** Having a goal helps Abel prioritize his spending and make conscious decisions about how to use his money, preventing unnecessary expenditures.
- iv. **Achievement and Satisfaction:** Successfully reaching his financial goal will provide a sense of accomplishment and build confidence in his ability to manage his finances in the future.

#### Task 3: Digital Literacy

#### 43. Computer hardware device to display information for a large audience.

The deputy headteacher may use a **Projector** (or **Multimedia Projector**) to display the information for a large audience.

#### 44. Match computer hardware devices with their respective category.



#### 45. Social media platforms for networking with customers.

Mwengo Company may use the following social media platforms for networking with its customers:

- i. **Facebook** (for broad reach, community building, and direct messaging)
- ii. **Instagram** (for visual content, product showcasing, and engaging with a younger demographic)
- iii. **Twitter/X** (for real-time updates, customer service, and public announcements)
- iv. **LinkedIn** (for professional networking, B2B engagement, and recruitment)
- v. **WhatsApp Business** (for direct customer communication, order processing, and customer support)
- vi. **TikTok** (for short-form video content, reaching a younger audience, and viral marketing)
- vii. **YouTube** (for video tutorials, product demonstrations, and educational content)

#### 46. Correct order of instructions to start up and use a computer.

The correct order of instructions to start up and use a computer is:

1. **(ii) Press the power button on the computer.**
2. **(iii) Wait for the computer to start up.**
3. **(iv) Use the computer to perform a task.**
4. **(i) Shut down the computer after use.**

#### 47. Example of a Visual Programming Application.

One example of a Visual Programming Application that can be used to create such instructions is **Scratch**.

#### 48. Type of online threat Benard is experiencing.

Benard is experiencing **Identity Theft** or **Impersonation** (specifically, **Online Impersonation** or **Social Media Impersonation**).

#### 49. Formula to calculate the grand total cost in cell D6.

The formula that the learners would use to calculate the grand total cost in cell D6 is:

**=SUM(D1:D4)**

#### Explanation:

- = indicates the start of a formula.

- **SUM** is a function that adds up a range of numbers.
- **(D1:D4)** specifies the range of cells that contain the individual total costs (250, 1000, 150, 40) that need to be summed up.

50.

**X: Meeting expectation**

**Y: Approaching expectation**

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