Grade 8 Pre-Technical Studies

Term 1 - 35 complete lesson plans

Ready to teach, in the KICD lesson-plan format | 40-minute lessons | PDF and editable Word

ABOUT THIS PACK

35 complete, ready-to-teach Grade 8 Pre-Technical Studies lesson plans for Term 1, covering fire safety, data safety, plane geometry, dimensioning and plain scale drawing.

TOPICS IN THIS PACK

Topic	Name	Lessons
1.1	Fire Safety	7
1.2	Data Safety	11
2.1	Plane Geometry	4
2.2	Dimensioning	7
2.3	Plain scale drawing	6

INSIDE EVERY LESSON PLAN

- The specific learning outcomes, key inquiry question, core competencies, values and PCIs, and the resources needed.
- A timed lesson flow: what the teacher does and what the learners do, from introduction to summary.
- The key content (a worked example, notes or a practical with its expected results), then four practice questions with the answers for the teacher.
- The common mistake to watch for, and ideas for learners who need support and for those ready for more.
- A four-level CBC assessment rubric (EE, ME, AE, BE), homework, and a blank reflection space to fill in after teaching.

A TASTE OF LESSON 1

Meaning and importance of fire

By the end of the lesson, the learner should be able to: a) explain the meaning of fire; b) state uses of fire in the work environment

> **Useful but dangerous**
> Fire is the heat and light given out when a fuel burns quickly in oxygen (combustion).
> Uses at work: cooking in hotels and schools; welding and metal work in jua kali workshops; firing pottery and bricks; heating; generating electricity.

You also receive this pack as an editable Word file, so you can change any lesson to suit your class before you print it. Lessons follow the order of the KICD curriculum design.

CONTENTS

No.	Lesson	Topic	Page
1	Meaning and importance of fire	1.1 Fire Safety	4
2	Causes of fire outbreaks	1.1 Fire Safety	7
3	Preventing fire outbreaks	1.1 Fire Safety	10
4	Firefighting techniques: cooling and smothering	1.1 Fire Safety	13
5	Firefighting techniques: starving and interrupting	1.1 Fire Safety	16
6	Role-playing firefighting	1.1 Fire Safety	19
7	Fire safety in day-to-day life	1.1 Fire Safety	22
8	Data and information	1.2 Data Safety	25
9	Importance of data	1.2 Data Safety	28
10	Threats: viruses and malware	1.2 Data Safety	31
11	Threats: unauthorised access	1.2 Data Safety	34
12	Protecting data with strong passwords	1.2 Data Safety	37
13	Screen locks and access control	1.2 Data Safety	40
14	Antivirus software	1.2 Data Safety	43
15	Backing up data	1.2 Data Safety	46
16	Safe online habits	1.2 Data Safety	49
17	Securing data: practical review	1.2 Data Safety	52
18	Data safety in day-to-day life	1.2 Data Safety	55
19	Drawing instruments	2.1 Plane Geometry	58
20	Layout of the drawing environment and paper	2.1 Plane Geometry	61
21	Constructing combined shapes	2.1 Plane Geometry	64
22	Combined shapes in daily life	2.1 Plane Geometry	67
23	What is dimensioning?	2.2 Dimensioning	70
24	Lines used in dimensioning	2.2 Dimensioning	73
25	Linear dimensioning	2.2 Dimensioning	76
26	Radial, diameter and arc dimensioning	2.2 Dimensioning	79
27	Angular dimensioning	2.2 Dimensioning	82
28	Forms of dimensioning: parallel, chain and combined	2.2 Dimensioning	85
29	Dimensioning portfolio and review	2.2 Dimensioning	88
30	Why draw to scale?	2.3 Plain scale drawing	91
31	Features of a plain scale	2.3 Plain scale drawing	94
32	Constructing a plain scale	2.3 Plain scale drawing	97

33	Reading a plain scale	2.3 Plain scale drawing	100
34	Drawing plane figures to scale	2.3 Plain scale drawing	103
35	Scale drawing at work	2.3 Plain scale drawing	106

Meaning and importance of fire

Strand 1.0 Foundations of Pre-Technical Studies > Sub-strand 1.1 Fire Safety | Lesson 1 of 7 | 40 minutes

SCHOOL	TEACHER	DATE
CLASS / STREAM	TIME	ROLL (B / G)

SPECIFIC LEARNING OUTCOME(S)

By the end of the lesson, the learner should be able to: a) explain the meaning of fire; b) state uses of fire in the work environment

KEY INQUIRY QUESTION(S)

- Why is fire safety important?

CORE COMPETENCIES, VALUES AND PCIS IN THIS LESSON

COMPETENCY	**Critical thinking and problem solving**	Learners choose a method, check their answers and give reasons for their choices.
COMPETENCY	**Creativity and imagination**	Learners make up their own examples, patterns or ways of showing the idea.
VALUE	**Responsibility**	Learners look after shared materials and finish every task.
VALUE	**Respect**	Learners listen while others explain and accept correction politely.
PCI	**Safety**	Learners follow safety rules when using materials and moving about.

LEARNING RESOURCES

Fire triangle and tetrahedron chart | Pictures of fire extinguishers | Learners' exercise books

ORGANISATION OF LEARNING

Whole class for the introduction and the summary; pairs or groups of four to five for guided practice; individual work for the independent tasks.

KEY WORDS

fire | combustion | flammable | combustible | electrical fault | cooling | smothering | starving | interrupting | extinguisher

THE LESSON AT A GLANCE

Introduction	Teacher models	Guided practice	On their own	Wrap-up
6 min	9 min	10 min	9 min	6 min

LESSON FLOW

Stage	Minutes	The teacher	The learners
Introduction	6	Greet the class and ask: "Key question: why is fire safety important? Where is fire used in workshops and industries?" Take two or three answers, link them to earlier work, then state today's outcome.	Answer the starter question, recall what they already know and read the outcome aloud.
Step 1: Teacher models	9	Take learners through "Useful but dangerous" (key ideas on the next page), explaining as you go. Use fire triangle and tetrahedron chart, pictures of fire extinguishers, learners' exercise books. Ask learners to predict what comes next before you show it.	Watch, predict the next step, ask questions and note the key steps in their exercise books.
Step 2: Guided practice	10	Give questions 1 and 2. Move round the groups, ask "How do you know?" and correct errors kindly on the spot.	Work in pairs or small groups, explain each step to a partner and check one another's answers.
Step 3: Independent practice	9	Set questions 3 and 4 for individual work. Mark as you walk round and note who needs help in the next lesson.	Work on their own, then swap books with a partner to check.
Summary and conclusion	6	Ask two or three learners to state the key idea in their own words. Give this exit question and check the answers: "What is combustion?"	Say the key idea in their own words and answer the exit question in the exercise book.

KEY IDEAS

Useful but dangerous

Fire is the heat and light given out when a fuel burns quickly in oxygen (combustion).

Uses at work: cooking in hotels and schools; welding and metal work in jua kali workshops; firing pottery and bricks; heating; generating electricity.

Out of control, fire destroys life, property and the environment; fire safety prevents this.

PRACTICE QUESTIONS - WITH ANSWERS FOR THE TEACHER

No.	Question	Answer
1	What is fire?	**Heat and light given out when a fuel burns in oxygen.**
2	Give three uses of fire at work.	**Cooking, welding and firing pottery.**
3	Why is fire safety important?	**To protect life, property and the environment.**
4	What is combustion?	**Burning of a fuel in oxygen.**

WATCH OUT FOR

Link to Integrated Science (classes of fire).

ASSESSMENT RUBRIC - THE FOUR CBC LEVELS

Level	What the learner can do
Exceeds expectations (EE)	Can explain the meaning of fire confidently and accurately, explain the method used, and apply the idea to new or unfamiliar problems.
Meets expectations (ME)	Can explain the meaning of fire accurately in familiar situations; notices and corrects slips without help.
Approaches expectations (AE)	Can partly explain the meaning of fire, or does so with prompts from the teacher or a partner; makes some errors.
Below expectations (BE)	Cannot yet explain the meaning of fire without direct help; needs the idea taught again with concrete objects.

SUPPORT AND EXTENSION

Learners who need support	Use pictures of fire at work.
Learners ready for more	Why do welders wear protective clothing? (Answer: To protect from sparks, heat and bright light)
Inclusion	Seat learners with low vision near the board and read aloud whatever you write; use large, clear, tactile materials; allow extra time; pair with a patient partner; use gestures or Kenyan Sign Language for the key words.

HOMEWORK AND FOLLOW-UP

Redo questions 3 and 4 neatly in the exercise book. Then tell someone at home what you learned about "meaning and importance of fire" and bring one question of your own to ask next lesson.

TEACHER SELF-CHECK

- Did every learner get a turn to handle materials or explain their thinking?
- Did most learners meet the outcome? Write down the names of those who did not.
- Was the pace right — did any step take too long or too short a time?
- Which competency and value did I see learners showing?
- What will I change the next time I teach this lesson?

REFLECTION ON THE LESSON / SELF-REMARKS

Write this after teaching - what worked, what to change, which learners need follow-up.

ELIMU254

Causes of fire outbreaks

Strand 1.0 Foundations of Pre-Technical Studies > Sub-strand 1.1 Fire Safety | Lesson 2 of 7 | 40 minutes

SCHOOL	TEACHER	DATE
CLASS / STREAM	TIME	ROLL (B / G)

SPECIFIC LEARNING OUTCOME(S)

By the end of the lesson, the learner should be able to: a) identify causes of fire outbreaks; b) classify them

KEY INQUIRY QUESTION(S)

- Why is fire safety important?

CORE COMPETENCIES, VALUES AND PCIS IN THIS LESSON

COMPETENCY	**Critical thinking and problem solving**	Learners choose a method, check their answers and give reasons for their choices.
COMPETENCY	**Creativity and imagination**	Learners make up their own examples, patterns or ways of showing the idea.
VALUE	**Responsibility**	Learners look after shared materials and finish every task.
VALUE	**Respect**	Learners listen while others explain and accept correction politely.
PCI	**Safety**	Learners follow safety rules when using materials and moving about.

LEARNING RESOURCES

Fire triangle and tetrahedron chart | Pictures of fire extinguishers | Learners' exercise books

ORGANISATION OF LEARNING

Whole class for the introduction and the summary; pairs or groups of four to five for guided practice; individual work for the independent tasks.

KEY WORDS

fire | combustion | flammable | combustible | electrical fault | cooling | smothering | starving | interrupting | extinguisher

THE LESSON AT A GLANCE

Introduction	Teacher models	Guided practice	On their own	Wrap-up
6 min	9 min	10 min	9 min	6 min

Inside this plan: the step-by-step lesson flow with what the teacher and learners do, the key content, practice questions with answers, a common mistake to watch for, an assessment rubric on the four CBC levels, support and extension ideas, homework and a reflection page.

LESSON FLOW

Stage	Minutes	The teacher	The learners
Introduction	6	Greet the class and ask: "What caused fires you have heard about in markets or schools?" Take two or three answers, link them to earlier work, then state today's outcome.	Answer the starter question, recall what they already know and read the outcome aloud.
Step 1: Teacher models	9	Take learners through "Causes" (key ideas on the next page), explaining as you go. Use fire triangle and tetrahedron chart, pictures of fire extinguishers, learners' exercise books. Ask learners to predict what comes next before you show it.	Watch, predict the next step, ask questions and note the key steps in their exercise books.
Step 2: Guided practice	10	Give questions 1 and 2. Move round the groups, ask "How do you know?" and correct errors kindly on the spot.	Work in pairs or small groups, explain each step to a partner and check one another's answers.
Step 3: Independent practice	9	Set questions 3 and 4 for individual work. Mark as you walk round and note who needs help in the next lesson.	Work on their own, then swap books with a partner to check.
Summary and conclusion	6	Ask two or three learners to state the key idea in their own words. Give this exit question and check the answers: "Give one cause of fire from carelessness."	Say the key idea in their own words and answer the exit question in the exercise book.

KEY IDEAS

Causes

Flammable substances: petrol, paraffin, cooking gas, thinners and spirit catching fire from flames or sparks; leaking gas cylinders.

Electrical faults: overloaded sockets, damaged cables, poor or illegal connections, faulty appliances left on.

Combustible materials: paper, wood shavings, cloth and rubbish piled near heat sources.

Human carelessness: smoking, unattended candles and jikos, children playing with matches, arson.

PRACTICE QUESTIONS - WITH ANSWERS FOR THE TEACHER

No.	Question	Answer
1	Name three flammable substances.	**Petrol, paraffin and cooking gas.**
2	Give two electrical causes of fire.	**Overloaded sockets and damaged cables.**
3	What are combustible materials?	**Materials that burn easily, such as paper and wood shavings.**
4	Give one cause of fire from carelessness.	**An unattended candle.**