eduresourcza.com

Downloaded from eduresourcza.com

Downloaded from eduresourcza.com

NATURAL SCIENCES: PLANNING & PREPARATION

GRADE	8	TERM & SEE WCED TAP	3	KNOWLEDGE STRAND	MATTER AND MATERIALS

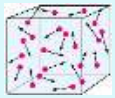
DATE: Term 3 Week 7; 2020

TEACHERS

Aim /Purpose/ Topic / Content / Concepts / Skills (WHAT I am going to teach/guide/support…)	Teaching Methodologies & Classroom Management Skills (HOW I am going to teach/guide/support…)	Resources / LTSM (WHAT I am going to use to teach/guide/support…)	
Topic: Particle model of matter **Concepts:** Pressure **At the end of these two lessons, you should be able to:** 1. Understand the concept of pressure, specifically in gases 2. To explain how pressure is affected by the increase in number of gas particles, when added to the gas in a container. 3. To explain how increasing the number of collisions inside a gas, increases its pressure.	**Explain to the learner that:** • Gases contain millions of fast-moving particles. • Gas particles are in constant motion, inside a container. As the particles move around, they collide with each other and bump against the inside of the container. • The force of the particles bumping against the sides of the container cause a phenomenon called gas pressure. • The number of bumps (or collisions) will depend on the number of gas particles in the container. • More particles inside the container mean more collisions, and more collisions mean a higher pressure.	**Paper Based Resources** 1. Your textbook; check the index for Term 2; (Matter and Materials – Particle Model of Matter: Pressure) for notes and activities 2. Sasol Inzalo textbook Grade 8 A: Section 2.8 (Pages 196 – 201)	**Digital Resources** 1. How to check tyre air pressure: http://www.howstuffworks.com/pressure-gauge.htm 2. **Links to Natural Sciences Siyavula & Natural Sciences and Technology Thunderbolt Kids Workbooks:** **Natural Sciences:** Grade 7-9 Workbooks: http://www.mstworkbooks.co.zhttp://www.mstworkbooks.co.za/ **Natural Sciences:** http://www.mstworkbooks.co.za/natural-sciences/natural-sciences.html **Natural Sciences:** https://www.siyavulaeducation.com/work-oer.html **Natural Sciences and Technology:** http://www.thunderboltkids.co.za/ **Thunderbolt Kids:** Learning adventures in Natural Sciences and Technology with the

Downloaded from eduresourcza.com

Downloaded from eduresourcza.com

				Thunderbolt Kids: http://www.thunderboltkids.co.za/ **Teachers & Parents**: http://www.thunderboltkids.co.za/teachers-parents.html
PARENTS 	See Teacher's info. 1. Explain the concept of pressure as described above. 2. Assist the learner in completing the activities and then with answering the questions. 3. Ensure that the learner completes the activities in the notebook. 4. If possible, use the link to watch the clip on how to check tyre pressure.	Tips to parents: Help your child search for items in the house that can be used for simple experiments. E.g Diagram of gas particles moving in different directions inside a container/bag/balloon. Explain by referring to the notes above. 	Car Tyre Pressure Gauge 	
LEARNERS' ACTIVITIES 	**ACTIVITY**: Understanding gas pressure **MATERIALS YOU WILL NEED TO COMPLETE THE ACTIVITIES:** • brown paper bags (medium size) • balloons • empty plastic cold drink or water bottles (2-litre bottles are preferable) • bicycle pump and tyre			
	STEP 1 **Instructions:** This step requires a brown paper bag. a) Blow up a brown paper bag until it is fully inflated. b) Try blowing it up even more. See if you can make it pop by blowing into it.		**Questions to Answer** 1. Write two or three sentences to describe what it feels like to blow into the bag when it is 'empty', compared to when it is 'full' of air. 2. Does it feel different? 3. Is it more difficult to blow into the bag when it is already full?	
	STEP 2 **Instructions:** This step requires a balloon. a) Blow up the balloon until it is the size of an orange. Pinch it closed but do not tie a knot in the top. b) Now blow up the balloon as large as you can. c) Try blowing it up even more. See if you can make it pop by blowing into it.		**Questions to Answer**: 1. Write two or three sentences to describe what it feels like to blow into the balloon when it is 'empty', compared to when it is 'full' of air. 2. Does it feel different?	

Downloaded from eduresourcza.com

Downloaded from eduresourcza.com

	<u>Additional Task</u>: Tie a knot in the top of an inflated balloon. Leave the balloon somewhere in the house and examine it again after one week. Does it look the same as when you inflated it a week ago? Remember to write your observations!!	3. Is it more difficult to blow into the balloon when it is already full?
	STEP 3 **<u>Instructions</u>:** This step requires a balloon and an empty plastic bottle. a) Stretch the balloon over the top of the bottle, with the balloon hanging down into the bottle. b) Blow into the balloon. What do you observe? Can you blow up the balloon? c) Now make a small hole in the bottom of the bottle. Blow into the balloon again. What do you observe now?	
	STEP 4 (OPTIONAL) **<u>Instructions</u>:** This step requires a bicycle tyre and pump. a) Use the pump to pump air into the tyre. Continue to pump until it becomes too difficult to pump any more air into the tyre.	**<u>Question to Answer</u>:** 1. Write 1 or 2 sentences about your observations.
Informal Assessment	**QUESTIONS:** Try to answer the following questions by explaining what is happening to the air particles in each case. Use the words 'particles', 'collisions' and 'pressure' in your answers. 1. What happens when you blow up a paper bag or a balloon, or when you pump air into a tyre? 2. When you blow into a paper bag, why does the bag pop or start to leak air after a while? 3. When you blow into a balloon that is fully inflated, why does the balloon pop? 4. Why do you think the balloon became smaller when it was left for a week? 5. Explain why you think it was impossible to blow up the balloon inside the bottle? Why was it possible to blow up the balloon when there was a hole in the bottle? 6. Why does it become more and more difficult to pump air into the bicycle tyre?	
Values taught	Attentiveness, competence, communication	

Downloaded from eduresourcza.com