

# SCIENCE SPAZA

www.sciencespaza.org

## STATIC ELECTRICITY



### HAVE YOU EVER WONDERED?



### ACTIVITY:

For this activity you will experiment with static electricity, by making a balloon stick to a wall, and by making pieces of paper fly.



### WHAT YOU WILL NEED:



balloon



wool jersey

a sheet of very thin paper



a day when the air is dry

### WHAT TO DO:

- 1 Take a balloon and blow it up. (Make sure you don't blow it up too hard, because it will burst!!). Tie the neck tightly so that no air can escape.



- 2 Rub the balloon rapidly against the wool jersey.



While you are doing this; ask another person from your group to tear tiny little pieces of paper from the sheet of paper.

Knowledge is Ncah!



**3** Bring the balloon close to the paper fragments and watch them fly!

You can also hold the balloon close to someone's bare arm or their head and watch their hair moving towards the balloon. Rub the balloon some more and try again!

**4** And now for the most interesting part: rub the balloon against your wool jersey and hold it close to the wall.

Experiment by moving the balloon gently towards the wall until it sticks to it, This may last for only a few seconds, because the static electricity is not very strong. What can you do to make it stick to the wall more strongly?

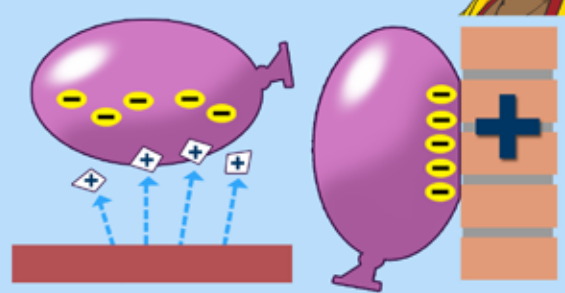
**WHAT IS GOING ON?**

HAVE YOU EVER THOUGHT OF WHAT IS HAPPENING WHEN YOU GET A SHOCK FROM TOUCHING A DOOR HANDLE?

You gain electrons when you walk, especially across a carpeted floor. The interaction occurs between the carpet and the soles of your shoes. This affects the overall electrical charge of your body.



So when you touch a door handle, the excess electrons jump from your hand to the door handle. You feel this as a tiny shock, like a miniature lightning strike!!



When you rubbed the balloon against the wool jersey, the balloon became electrically charged, (it gained static electricity). It is this charge that made the pieces of paper fly towards the balloon, because they carried a charge that was opposite to the charge on the balloon. That is also what made the balloon stick to the wall.

Static electricity can range from low energy levels, such as the ones you were experimenting with in this activity, to high energy levels such as those that are shown by a lightning storm. Lightning is the most powerful display of static electricity in nature. It is formed as a result of clouds becoming statically charged as they move through the air. Normally clouds become negatively charged. When this negative charge interacts with positive charges (in the atmosphere or on the ground) the result is a flash of lightning.



# CAREERS

THERE ARE GREAT JOB OPPORTUNITIES IN:

ENGINEERING (ELECTRICAL)

ELECTRONICS/COMMUNICATION TECHNOLOGY

## CURRICULUM LINKS

- PHYSICS (ELECTRICITY)
- ELECTROMAGNETICS
- COULOMB'S LAW

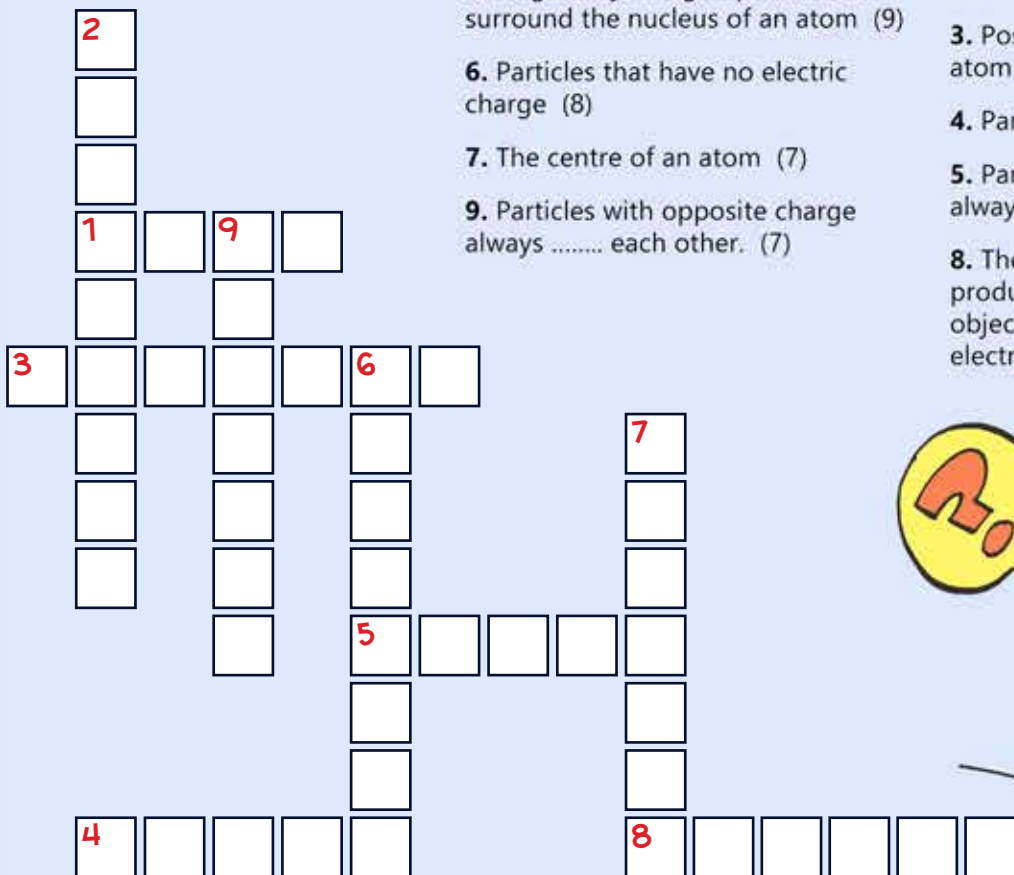
## PUZZLE YOUR MIND!!!

### DOWN

- Negatively charged particles that surround the nucleus of an atom (9)
- Particles that have no electric charge (8)
- The centre of an atom (7)
- Particles with opposite charge always ..... each other. (7)

### ACROSS

- The most common source of energy that is used to generate electricity in South Africa (4)
- Positively charged particles in an atom (7)
- Particles that make up matter (5)
- Particles with the same charge always ..... each other. (5)
- The type of electricity that is produced by friction between two objects, where there is an exchange of electrons (6)



ANSWERS:  
 Across: 1. Coal, 3. Protons,  
 4. Atoms, 5. Repel, 8. Static  
 Down: 2. Electrons,  
 6. Neutrons, 7. Nucleus,  
 9. Attract



# STARTING YOUR OWN SCIENCE SPAZA



THINK OF A PLACE WHERE PEOPLE GET TOGETHER TO HAVE FUN, LEARN FROM EACH OTHER AND PICK UP A FEW ESSENTIALS. THAT'S RIGHT! YOUR LOCAL **SPAZA SHOP!** - ONLY THIS TIME YOU'LL BE PICKING UP **SCIENCE ESSENTIALS!**

SCIENCE SPAZA IS A **SCIENCE CLUB** SUPPORTED WITH FUN ACTIVITIES AS WELL AS TIPS AND TOOLS TO MAKE YOUR SCIENCE TIME REALLY WORTHWHILE.

IT'S A SPACE WHERE **LEARNERS** CAN ENGAGE WITH SCIENCE IN A **FUN** AND **INTERACTIVE** MANNER AND WHERE **TEACHERS** CAN GET NEW IDEAS FOR **PRACTICAL SCIENCE TEACHING!**

## WHAT WILL YOU NEED?



**1** A GROUP OF FRIENDS WHO ARE **EXCITED** ABOUT SCIENCE!



**2** A PARENT OR TEACHER TO ASSIST YOU

**3** A TIME AND PLACE TO MEET

**4** SOME **CURIOSITY** AND AN INTEREST IN FINDING OUT MORE ABOUT THE WORLD!

## SCIENCE SPAZA APPLICATION FORM

Name of school: \_\_\_\_\_

Municipality: \_\_\_\_\_

Province: \_\_\_\_\_

Name of your science club: \_\_\_\_\_

Name of contact person: \_\_\_\_\_

Telephone number: \_\_\_\_\_

Email address: \_\_\_\_\_

Postal address: \_\_\_\_\_

To be filled in by responsible adult (parent/teacher)

Name: \_\_\_\_\_

Surname: \_\_\_\_\_

Position: \_\_\_\_\_

ID Number: \_\_\_\_\_

Signature (parent/teacher): \_\_\_\_\_

Date: \_\_\_\_\_

Send to PO Box 22106, Mayor's Walk, 3208, Fax to 086 610 5453 email: [info@sciencespaza.org](mailto:info@sciencespaza.org) or submit your application online at [www.sciencespaza.org](http://www.sciencespaza.org)