

Govt. Jobs Test Preparation with Sufian Goraya

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Every day science

Big Bang theory:

Almost 14 billion years ago Universe started by Massive explosion stated as big bang. According to the Big Bang models, the universe at the beginning was very hot and very compact. Universe contains millions of galaxies.

Galaxy:

Several Solar System makes a galaxy. Our solar system lies in Milky way galaxy. Father of astronomy Copernicus And Father of Modern astronomy Galileo said that Sun is center of universe.

Solar System:

Solar System contains following four things:

- ❖ Star
- ❖ Planet
- ❖ Satellites
- ❖ Asteroids

1. Star:

Star has its own light. Sun is an example of star. Age of Sun is 4.6 billion years. It contains 70% hydrogen and 27% helium. There is fusion reaction in sun which is producing heat. Due to this there is 15-20 million $^{\circ}\text{C}$ temperature inside the sun, and 600°C outer side of the Sun.

Fission and Fusion reaction:

The main difference between these two processes is that fission is the splitting of an atom into two or more smaller ones while fusion is the fusing of two or more smaller atoms into a larger one. In both reactions heat and light emits.

2. Planet:

Planet has not its own light. Our earth is a planet it takes light from earth. Light of sun takes 499 second(8 min 19 seconds) to reach on earth.

Our solar system has 8 planets. 4 are terrestrial and 4 are gaseous planets.

Mercury	Venus	Earth	Mars	Jupiter	Saturn	Uranus	Neptune
M	V	E	M	J	S	U	N
8	6	5	7	1	2	3	4

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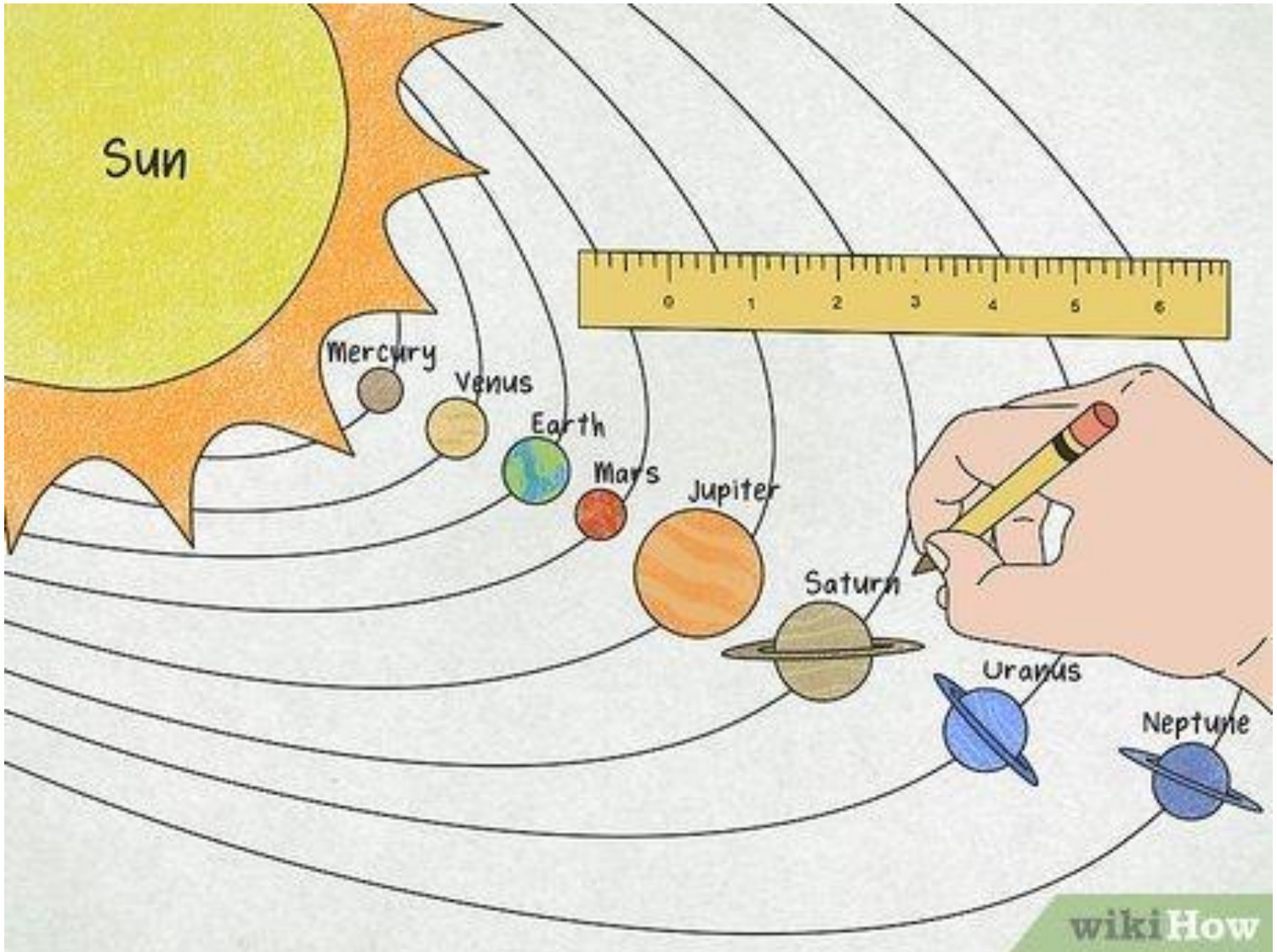
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1	Mercury	<ul style="list-style-type: none">❖ Closest to sun.❖ shortest Orbit,❖ No moon
2	Venus	<ul style="list-style-type: none">❖ Hottest planet and slowest planet.❖ longest day and night, Twins of earth❖ East to west(clock wise) movement.❖ No Moon
3	Earth	<ul style="list-style-type: none">❖ Most dense

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		<ul style="list-style-type: none">❖ Blue planet❖ anti clockwise rotation❖ Only one moon
4	Mars	<ul style="list-style-type: none">❖ Next to earth❖ Some signs of earth supposed❖ Anti Clockwise rotation❖ Two moon
5	Jupitar	<ul style="list-style-type: none">❖ Largest planet of the solar system❖ 11 times bigger than earth and safeguard of Earth❖ Fastest anti clockwise rotation only in 9 hours 50 min❖ 79 moons
6	Saturen	<ul style="list-style-type: none">❖ 2nd largest planet❖ 82 moons(visible ring)
7	Urinus	<ul style="list-style-type: none">❖ 2nd last planet❖ Clock wise movement❖ 27 moons/satellites
8	Neptune	<ul style="list-style-type: none">❖ Forthest from sun❖ 14 moons,coldest planet

3.Satellite:

Satelites or moons have not their own light. They revolve around their Planets. There are different satellites of different planets. Our earth has only one moon of age 4.54 billion years. Light of our moon takes 1.3 seconds to reach earth. Mars has two satellites, Jupiter has 79 satellites (moons), Saturn has 82 moons.

Types of Satellites:

There are two types of satellites:

- 1) Natural satellite (Moon)
2. Artificial Satellite (Sputnik 1 by Russia in 1957)

4. Asteroids:

There are some irregular shape and movement particles lies between Jupiter and Earth called Comets strip. There is also a ciper belt after Neptune in which Pluto lies. Large of them are called Asteroids. And the small tiny particles are called Meteoroids for example burning stars. They are made up of gasses.

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Environment

- Surroundings of an organism which affect the life are called environment.
- Ecosystem formed by interaction of living (biotic) and non living things. (Abiotic)
- Biotic (living) part of Eco system makes community
- Living things of same kind called population.
- The place where a living things live is called Habitat
- Grass land Habitat, POND or Aquatics, Desert, The Rainforest

Atmosphere:

1. Total length 10,000km

2. Total layers 05

3. Names of layers :

Troposphere, Stratosphere, Methosphere, Thermo sphere, Exosphere,

(Thank you so much the ex)

4. Our environment is in troposphere in which highest density is of Nitrogen

5. Ozone gas layer saves us from ultraviolet rays. it lies stratosphere sphere

General Gas Equation:

$$\underline{PV=nRT}$$

1. Pressure and temperature are Proportional to each other.

2. Pressure and volume are Proportional to each other.

3. If temperature of a Gas increases then its volume will..?

4. If pressure increases then volume.....?

5. Breath problem on hills is due to low atmospheric

Transportation, Transpiration, Translocation

Transportation: Plants transport the water and minerals from roots to leaves through xylem vessels. This are called transportation. It occurs due to diffusion. Diffusion means the movement of a substance from its higher amount to its lower amount.

Transpiration: The loss of water from leaves through evaporation is called Transpiration.

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Translocation: The Movement of prepared food from leaves to all parts of plant is called translocation. Leaves are productive factories in trees. It occurs in Phloem.

Digestive System:

1. The process of changing food into simpler form is called digestion system. digestive organs are mouth, oesophagus, stomach, small intestine, large intestine, supportive organs liver, pancreas, gallbladder.
2. Digestion process takes place in a long tube called alimentary canal, starting from mouth and ends at the anus.
3. The process of digestion starts from mouth, In the mouth teeth break the food into small pieces and tongue mixes saliva with food so that food become soft and moist. Tongue pushes food inside.
4. The chewed food is pushed to food tube called oesophagus .Oesophagus uses peristaltic movements to bring food in the stomach. Reverse of peristalsis is vomiting.
5. Stomach is J shaped muscular bag, It mixes digestive juice in food, The food spend about 4 hours in the stomach. Digestive juice also contains an acid which kills germs in the food.
6. As food leaves the stomach, it is passed to the small intestine, where the final digestion takes place. helping organs in small intestine are liver, pancreas,intestinal walls. Liver provides bile salt to make fats easier to absorb.The absorption of food takes place in last part of small intestine .the inner part of small intestine has many finger type structures called villi.Digested food passes into the blood through walls of villi.
7. The undigested part of food passes through large intestine. The main function of large intestine is to absorb extra water. The undigested food becomes solid and is called faeces (waste).Faeces stored in last part of large intestine called the rectum and passes out of body via anus.

Respiratory System:

1. **Breathing is the process that moves air in and out of the lungs. While respiration is the process by which living organisms use oxygen of air and food to produce energy.**

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2. The parts of the body used in the process of breathing form the respiratory system.
3. Parts of respiratory system are Nose, Throat, Trachea (windpipe), Bronchi and Lungs
4. The air enters through nose or mouth. There are hairs and mucous in the nose to warm up, moisten and clean the air. Mucous is sticky liquid.
5. The Air enters in the throat and passes through larynx. Vocal cords are present in the larynx to produce sound.
6. Our throat has two pipes one for food and other for air. It is the epiglottis which controls the opening and closing of both pipes.
7. From larynx air passes through trachea or wind pipe. Its made of c shaped rings of cartilages. These rings keep our trachea open. Mucous and hairs are also in trachea.
8. At entrance point to lungs trachea divides into two branches called bronchi.(Singular bronchus)
9. Bronchi carry air into lungs. most important part of respiratory system is lungs. In each lung bronchus divides into smaller tubes called bronchioles. At the end of each bronchiole, tiny air sacs called alveoli, alveoli surrounded by blood capillaries. through walls of alveoli oxygen and carbon dioxide are interchanged.
10. Red blood cells carry oxygen into every part of body and carbon dioxide leave our body when breath out.
11. Our lungs have no muscles, two other muscles used in breathing i.e. inter costal muscles of ribs and dome shaped diaphragm.
12. When intercostals muscles pull our ribs outward and diaphragm contracts, the air enters in the lungs its called inhaling
13. When intercostals muscles and diaphragm relaxed the air moves out of lungs its called exhaling.

Reproductive System:

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- This process is for continuity of life on plant. In this system living organisms produce new living organisms.
- Reproductive system has two types. 1.Sexual 2. Asexual
- Sexual refers to animals and Asexual refers to plants & trees.
- Reproduction carried out by gametes. Male gamete(sperm) female gamete(egg)
- Both gametes fuse to form zygote.
- Successful action of sperm on egg is called fertilization of egg.
- Fertilization in plants is usually through Pollination. It has two types self pollination and cross pollination.
- Flowers, Branch of trees and stem can be reproductive organs of trees.

Blood Circulatory System

1. Blood, Blood vessels and heart make blood circulatory system.
2. Heart is muscular pumping Organ. It pumps deoxygenated blood in to the lungs and oxygenated blood to the whole body. Pumping function called heart beats which are approx 70 per minutes
3. Heart Size is about our fist. It found in lefter back of chest.
4. Heart has four chambers. Left& right atrium and left& right ventricle.
5. Ventricles are larger than atrium. Blood passes from atrium to ventricles. There are valves between atrium and ventricles which make sure blood flow unidirectional.
6. Deoxygenated blood from the body enters in heart from right atrium and oxygenated blood from lungs through left atrium.
7. Right ventricle pushes blood toward lungs while left ventricle pushes blood to body.
8. Blood vessels are of three types. Arteries, Capillaries, Veins.
9. Arteries carry blood away from the heart. Most of the arteries carry oxygenated blood but pulmonary arteries carries deoxygenated blood to the lungs.
10. Arteries divide many times to form smaller tubes called capillaries.

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11. Capillaries are smallest blood vessels in the body. Food and Oxygen from blood of capillaries diffuse into the cells. Waste material and carbon dioxide gas from the cells diffuse into the capillaries.
12. Capillaries rejoin to form veins. Veins bring blood back to the heart. Most veins bring deoxygenated blood but pulmonary veins bring oxygenated blood.

Pollination:

1. The Transfer of Pollen Grains from the anther of flower to Stigma of Carpel is called Pollination.
2. Pollination is of two types 1.self pollination,cross pollination
3. The agents that transfer pollen grains are called pollinators. Wind, Water, Insects, and birds are examples of pollinators.

Parts of Flower:

1. A flower has 4 parts. 1. Petals (Attraction) 2. Sepals (Protection) 3. Stamen (Male part) 4. Carpel (Female Part)
2. Each Stamen has filament and Anther. Grains produced in Anther
3. Each Carpel has a sticky stigma, style and ovary .Ovules present in ovary.
4. Ripened ovary is called fruit.

Human body:

1. Largest cells in human body are Nerve Cells
2. Death of human body means death of brain tissues.
3. The normal Human body temperature is 310 K or 37 degree centi grade
4. Normal pH of human body is 7.5 – 8
5. Largest Gland in Human body is liver.

Human Nutrition:

The six classes of nutrients found in foods are as follow:

- Carbohydrates
- Lipids (mostly fats and oils)
- Proteins
- Water
- Vitamins
- Minerals

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Macro Nutrients:

Macronutrients provide raw materials for tissue building and maintenance as well as fuel to run the myriad of physiological and metabolic activities that sustain life. Carbohydrate, Lipids, Proteins and water.

Micronutrients:

These are not themselves energy sources but facilitate metabolic processes throughout the body. Body needs in very low quantity. Vitamins and vitamins are these nutrients.

Water:

Although often overlooked as a nutrient, water (H₂O) is actually the most critical nutrient of all. Humans can survive weeks without food but only a matter of days without water. Water makes up about 50 to 70 percent of body weight, 85% of milk contains water. approximately 60 percent in healthy adults and an even higher percentage in children. adults typically need at least 2 litres (8 cups) of water a day, from all sources.

Carbohydrates:

These are composed of carbon, hydrogen, and oxygen, are the major supplier of energy to the body, providing 4 kilocalories per gram. In most carbohydrates, the elements hydrogen and oxygen are present in the same 2:1 ratio as in water, thus “carbo” (for carbon) and “hydrate” (for water).

Lipids:

Lipids also contain carbon, hydrogen, and oxygen but in a different configuration, having considerably fewer oxygen atoms than are found in carbohydrates. Lipids are soluble in organic solvents (such as acetone or ether) and insoluble in water,

Proteins:

Proteins, like carbohydrates and fats, contain carbon, hydrogen, and oxygen, but they also contain nitrogen, a component of the amino chemical group (NH₂), and in some cases sulfur. Proteins serve as the basic structural material of the body as well as being biochemical catalysts and regulators of genes. Aside from water, protein constitutes the major part of muscles, bones, internal organs, and the skin, nails, and hair. Fish, Eggs and Yogurt, are the best sources of protine.

Minerals:

These are simple inorganic elements often in the form of salts in the body that are not themselves metabolized, nor are they a source of energy.

Minerals constitute about 4 to 6 percent of body weight about one-half as calcium and one-quarter as phosphorus (phosphates), the remainder being made up of the other essential minerals that must be derived from the diet.

Vitamins:

- Human body needs vitamins in very low quantity.
- Vitamins are of two categories water soluble (vitamin B&C) and fat soluble (vitamin A, D, E, &K).

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- Vitamins are of 13 types(A,B1,B2,B3,B5,B6,B7,B9,B12,C,D,E,K.
- Vitamins produced by our body are non essential vitamins and while vitamins taken by out sources are called essential
- Deficiency of vitamin A leads to night blindness
- Sun light is best source of which Vitamin D
- Human body needs vitamins in very low quantity.
- Vitamins overdose is dangerous for human body.

Food groups:

The following nine food groups reflect foods with generally similar nutritional characteristics:

- (1) cereals
- (2) starchy roots
- (3) legumes
- (4) vegetables and fruits
- (5) sugars, preserves, and syrups,
- (6) meat, fish, and eggs
- (7) milk and milk products
- (8) fats and oils
- (9) beverages.

Computer science:

Computer:

The term Computer is derives from latin word compute means to calculat, to count or sum up. Central Processing unit (CPU) is called brain of computer. CPU is combination of control unit and Arithmetic logic unit. Charles Babbage is known as father of computer

Types of Computer:

- On the basis of size, there are five types of computers:
 1. Supercomputer
 2. Mainframe computer
 3. Minicomputer
 4. Workstation
 5. PC (Personal Computer)
- On the basis of data handling capabilities, there are three types of computer:
 1. Analogue Computer
 2. Digital Computer
 3. Hybrid Computer

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Generations of computer:

- First generation computer(1946-1959) based on vacuum tubes
- 2nd Generation computer(1959-1965) based on transistor
- 3rd generation of computer(1965-1971) based on integrated circuit.
- 4th Generation of computer (1971-1980) based on Microprocessor.
- 5th Generation of computer(1980-onward) based on Artificial Intelligence.

IT related important inventions:

- Vint Cerf is known as father of internet.
- Dennis Ritchie is known as father of programming languages
- A wireless Technology built in electric gadgets used used exchanging data over short distance is called Bluetooth.
- Ericson was founder of Bluetooth
- Christopher Latham Sholes invented Keyboard
- WWW was invented by Tim Berner lee.

IT related important terms:

- LTE stands for long term Evolution
- WWW stands for World Wide Web.
- ALU stands for Arithmetic logic unit
- VGA stands for video graphics Array
- A computer on internet is identified by IP address
- URL stands for uniform resource locator
- GUI stands for Graphical user interface
- OMR stands for Optical Mark Reader
- MICR stands for Magnetic Ink Character Reader
- NOS is stands for Network operating system.

Important Questions:

- Analog computer works on the supply of continuous Electrical pulses.
- Binary numbers means 0,1.
- Bit is also called binary digit.
- Computer stores data in binary form.
- MPG is file extension of video type file.
- Silicon is used to make computer Chips
- Modem is used to send digital data over phone line.
- Modem convert digital signals to analog signals
- One byte is equal to 8 bits.
- One Nibble is equal to 4 bits.
- Oracle is related to database.
- Machine Language was used as first generation language.
- Supercomputer is most powerful type of computer
- Linux is an operating system.

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- IBM is an American computer company called big blue.
- A transfer of data from one place to another place is called data communication.
- Macintosh series of PC developed by Apple.
- The arranging of data in logical sequence is called sorting.
- In analog computer input is never converted to digital form.

1. Windows is an operating system
2. Google is largest search engine in the world.
3. Yahoo is 2nd largest search engine in the world.
4. Youtube is not a search engine.Its a social networking website.Also its 2nd most visiting website after Google.
5. Facebook is ..?
6. Modem is a connecting devise for internet.its not formal parof a computer
7. Driver is a software programme that controles the hardware
8. Boot means to start the computer
9. Keyboard is an input device
10. Connecting more than one computers each other is called Network
11. Internet is network of networks
12. **Compiler is a computer programme which converts entire programme into machine language**
13. Mouse is an input device
14. Monitor is an output device
15. Pentium is term of processor
16. **The devices which takes data outside and put into the computer are called input devices**
17. **The devices which take data from computer and show out are called out put device**

Data Storage Units

- Bit is the smallest unit of data storage
- Byte is equal to the 8 bits
- Kilo byte (KB) is equal to 1000 byte
- Mega byte(MB) is equal to 1024 KB
- Gega Byte (GB) is equal to 1024 MB
- Terabyte(TB) is equal to 1024 GB
- Peta byte (PB) is equal to **1024** TB

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• Microsoft Word Short Keys

Sr#	Short Key	Action
1	Ctrl+A	To select All
2	Ctrl+B	To Bold
3	Ctrl+C	To copy
4	Ctrl+E	Align center
5	Ctrl+F	To find/search
6	Ctrl+I	To Italic
7	Ctrl+L	Align left
8	Ctrl+N	To open new document
9	Ctrl+O	To open document
10	Ctrl+P	To Print
11	Ctrl+R	To Align Right
12	Ctrl+S	To save
13	Ctrl+U	To underline
14	Ctrl+V	To paste
15	Ctrl+W	To Close document
16	Ctrl+X	To cut
17	Ctrl+Y	To Redo
18	Ctrl+Z	TO Undo

MS Powerpoint Short Keys:

Create new presentation.	Ctrl+N
Add a new slide.	Ctrl+M
Make selected text bold.	Ctrl+B
Change the font size for selected text.	Alt+H, F, S
Open the Zoom dialog box.	Alt+W, Q

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Cut selected text, object, or slide.	Ctrl+X
Copy selected text, object, or slide.	Ctrl+C
Paste cut or copied text, object, or slide.	Ctrl+V
Undo the last action.	Ctrl+Z
Save the presentation.	Ctrl+S
Insert a picture from your device.	Alt+N, P, D
Insert a shape.	Alt+N, S, H
Select a theme.	Alt+G, H
Select a slide layout.	Alt+H, L
Go to the next slide.	Page down
Go to the previous slide.	Page up
Go to the Home tab.	Alt+H
Go to the Insert tab.	Alt+N
Start the slide show.	F5
End the slide show.	Esc
Close PowerPoint.	Ctrl+Q

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