

FLIGHT TRAINING ADELAIDE
ENGLISH LANGUAGE SUPPORT PROGRAM

VOCABULARY

HUMAN PERFORMANCE

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Teacher Plan:

1.

ACTIVITY 1

Which body part or function do the following words refer to:

Acoustic	
Acuity	
Alveoli	
Blinking	
Capillary	
Cochlea	
Cones & rods	
Cornea	
Cramps	
Decibels	
Diaphragm	
Electrocardiogram (ECG)	
Eustachian tube	
Exhale	
Expiration	
Fovea	
Fracture	
Haemoglobin	
Iris	
Otolith organ	
Pulse	
Resuscitation	
Rhodopsin	
Saccades	
Semicircular canals	
Sinuses	
Stroke	
Vestibular system	

ACTIVITY 1. Consolidation

rods and cones	rhodopsin	sinuses
fovea	electrocardiograph	vestibular system,
cochlea	acuity	haemoglobin
cramps	otolith organ	cornea
eustachian tube	exhale	strokes
alveoli	decibels	iris
expirations	semi-circular canals	acoustic

READ THE SENTENCES AND FILL IN THE BLANKS WITH A WORD FROM THE TABLE.

1. Unless rehearsed, inputs will be lost in 15 - 30 sec. Information is stored as an acoustic or spatial or spatial code
2. The clarity with which we see an object is at a maximum when the light falls on the centre of the retina (fovea) is called Visual Acuity
3. Gas will diffuse through a membrane from high to low pressure. This is the principle that allows the exchange of O₂ and CO₂ across the alveoli membranes in the lungs.
4. The cochlea, which converts the mechanical vibrations arriving via the ossicles into nerve signals that are transferred to the brain to be interpreted as sounds.
5. The retina contains two different types of photoreceptor cells, (they are photosensitive – that is, sensitive to light) known as rods and cones, which are responsible for providing vision.
6. The cornea is a non-vascular (contains no blood vessels), transparent fibrous coat that covers the iris.
7. Physical exhaustion is indicated by slow movement, increased effort to carry out work, complains of cramps or stiff muscles.
8. Sound is measured in two ways: The loudness which is measured in decibels (dB); and the pitch, or frequency, which is measured in Hertz (Hz).
9. The electrocardiograph measures electrical activity of the heart and graphs this electrical activity on paper.
10. The Eustachian tube connects the middle ear to the nasal passages, which finally terminates at the back of the throat.
11. To help clear the ears on descent, swallowing, yawning and chewing are useful. If none of these works, then the Valsalva Manoeuvre can be used. Close the mouth and pinch the nose, then gently exhale into the pharynx and nasal region.
12. The more violent expirations that accompany sneezing and coughing will spread millions of pathogen carrying droplets at great speed over considerable distances

13. There is a small central area of the retina known as the fovea, which contains a large number of cones, but no rods,
14. Oxygen is transported around the body by the haemoglobin in the blood.
15. The iris is a coloured muscular diaphragm, situated behind the cornea and contains an aperture known as the pupil.
16. The Otolith organ works in a similar manner to the semi-circular canals; it also contains sensitive hairs and fluid.
17. Within the rods, a chemical called Rhodopsin is necessary for the full contrast sensitivity of the rods.
18. Whilst the semi-circular canals are able to determine angular accelerations, they are unable to perceive angular velocity.
19. Sinuses are air cavities in the cranial bones, especially those near the nose and connecting to it.
20. Strokes are usually caused by a blockage of, or by a burst blood vessel in the brain.
21. The vestibular system, or *balance system*, is the sensory system that provides the dominant input about our movement and orientation in space, and is situated in the inner ear.

ACTIVITY 2 Explain the following words and match them with their opposites.

11	Abnormal	1.	Beneficial
2	Acute	2.	Chronic
9	Ample	3.	Consistent
4	Autocratic	4.	Democratic
7	Deteriorate	5.	Deteriorate
1	Detrimental	6.	Impervious
3	Erratic	7.	Improve
15	Monotonous	8.	Incompetent
10	Periphery	9.	Insufficient
8	Proficient	10.	Mainstream
14	Reclined	11.	Normal
5	Recuperate	12.	Quit
13	Sporadic	13.	Regular
6	Susceptible	14.	Upright
12	Sustain	15.	Varied

ACTIVITY 2. Consolidation:

susceptible	normal	chronic
improves	erratic	consistent
deteriorate	Sporadic	severe
periphery	beneficial	upright
regular	abnormal	dehydration.
insufficient	varied	acute

READ THE SENTENCES AND FILL IN THE BLANKS WITH A WORD FROM THE TABLE.

1. The electrocardiograph gives the doctor an indication of any abnormal activity of the heart.
2. Stress may be acute (short-term), building up in a few hours or days, but being resolved fairly quickly. Or it may be chronic, (longer-term) affecting the person for months or years.
3. Exposure to air temperatures above 30°C requires 250ml of water every 30 minutes to prevent dehydration.
4. Performance begins to deteriorate in temperatures above 32° C.
5. An alcohol hangover is associated with a variety of symptoms that may include erratic motor functions and trouble sleeping.
6. The clarity with which we see an object deteriorates rapidly as the image moves away from the fovea towards the periphery of the retina.
7. Sporadic errors are difficult to predict as they are infrequent and unrelated. They are usually resistant to correction through training or indoctrination.
8. A poor diet makes a body susceptible to illness. Missing meals can affect performance.
9. A severe lack of oxygen for a sustained period will lead to unconsciousness, coma, brain damage and eventually, death.
10. If nausea continues on subsequent flights, medication may be beneficial.
11. Every individual is likely to have their own characteristic and consistent response pattern to stressful events.
12. Exercise improves both physical and mental performance as well as assisting towards a longer, healthier and more active and pleasurable life.
13. Further increase in 'g will inevitably lead to insufficient oxygen and sugar being supplied to the brain, resulting in a decrease in brain function and eventually loss of consciousness.
14. A useful measure of fitness is the time taken for the heart rate to return to near the resting rate. As your fitness increases, the time required to return to a near normal heart rate will reduce.

15. All pilots will have mandatory regular audiograms (hearing tests) as part of their medical examination requirements.
16. The inner ear may falsely suggest that the head is tilted while the eyes and somatosensory systems suggest that one is upright.
17. Ozone exposure limits are many, varied and complex, with various aviation regulatory authorities and environmental protection agencies setting differing 'safe' limits.

ACTIVITY 3 : Match these words to their definitions

PERSON B

1	Hyperglycaemia	1. High blood sugar levels
6	Acute fatigue	2. Inability to sleep
10	Anxiety	3. Loss of water from the body due to perspiration
9	Bleeding	4. Low blood sugar levels
7	Cardiac arrest	5. Shaking slightly with movements you can't control because you are ill, cold or frightened
3	Dehydration	6. Short term tiredness after eg a busy day. Recover after a good sleep.
8	Exhaustion	7. Stopping of the heart
4	Hypoglycaemia	8. The state of being so tired that you have no energy left
2	Insomnia	9. The state of losing blood from the body
12	Shiver	10. Worry
5	Tremble	11. You bring food and drink back up from your stomach, out through your mouth.
11	Vomit	12. Your body shakes because you are cold or frightened

Ask your partner to explain the words below you don't know.

Congested
Cramps
Diabetes
Dizziness
Drowsiness
Dysentery
Fainting
Fracture
Nausea
Seizure
Shock
Ulcer

ACTIVITY 3 : Match these words to their definitions

PERSON A

5	Congested	1. A break in for example a limb.
6	Cramps	2. A change of consciousness caused by a disturbance of blood flow to the brain
3	Diabetes	3. A condition where the body can't produce enough insulin needed for the metabolism of glucose sugar..
4	Dizziness	4. A feeling that you are losing your balance or about to fall down
12	Drowsiness	5. A medical condition in which an organ of the body become blocked with liquid eg lungs
9	Dysentery	6. A pain you feel caused by muscles suddenly contracting eg stomach, leg
2	Fainting	7. A serious physical condition in which blood cannot circulate properly often as a result of injury
1	Fracture	8. A sore area on your skin that is very painful and may bleed. It can be external or internal
11	Nausea	9. An infection in a persons intestines that causes severe diarrhoea
10	Seizure	10. Another word for a fit
7	Shock	11. Feeling going to be sick or vomit.
8	Ulcer	12. Feeling sleepy

Ask your partner to explain the words below you don't know.

Hyperglycaemia
Acute fatigue
Anxiety
Bleeding
Cardiac arrest
Dehydration
Exhaustion
Hypoglycaemia
Insomnia
Shiver
Tremble
Vomit

ACTIVITY 4: CONSOLIDATION

dehydration	congested	diabetes
shivering	bleeding	seizure
anxiety	dizziness	drowsiness
vomiting	fainting	exhaustion
Hypoglycemia	Acute Fatigue	
nausea	Insomnia	

READ THE SENTENCES AND FILL IN THE BLANKS WITH A WORD FROM THE TABLE.

1. Acute Fatigue is often caused by intense mental or physical activity over a relatively short time frame and requires a relatively short recovery time.
2. Consideration of one's emotional state is also an important consideration for pilots. It is normal for all of us to occasionally suffer some mild anxiety, depression or fear.
3. Hypaemic Hypoxia occurs when there is a decrease in the amount of red blood cells (RBCs) available for O₂ transport. It may be because of blood loss from severe bleeding (internal, or external), blood donation, from menstruation, chronic infection, or an iron deficiency in the diet causing anaemia.
4. Exposure to air temperatures above 30°C requires 250ml of water every 30 minutes to prevent dehydration. Any more than this, the body will excrete as urine.
5. Physical exhaustion can be defined as slow movement, increased effort to carry out work, complaints of cramps or stiff muscles.
6. Hypoglycemia can produce a variety of symptoms and effects but the principal problems arise from an inadequate supply of glucose as fuel to the brain, resulting in impairment of function.
7. The inability to sleep under normal favourable conditions is called Insomnia.
8. In stage 1 of hypothermia, the body temperature drops by 1-2°C below normal temperature and mild to strong shivering occurs.
9. Common signs and symptoms of airsickness include: nausea, vomiting, vertigo, loss of appetite, cold sweating, skin pallor, difficulty concentrating, confusion, drowsiness, headache, and increased fatigue.
10. One of the arguments against automation is that new tasks of reprogramming are often required in congested airspace.
11. High blood pressure (or hypertension) can lead to a number of health problems, including coronary artery disease, strokes and diabetes.
12. Low blood pressure is less of a problem but can result in dizziness or fainting.

13. The hypoxic person will suffer faulty judgement, difficulty in concentrating, indecision and drowsiness.
14. Generally, blood pressure repeatedly greater than 140/90 is considered high and will be the cause of some concern. Low blood pressure is less of a problem but can result in dizziness or fainting.
15. Alcohol's effect on the stomach lining can result in nausea.
16. The term fit (or seizure) usually relates to epilepsy, which arises from problems associated with abnormal electrical activity in the brain.

ACTIVITY 4 :

Look at the following definitions.. Complete the words and after you have finished, Read out the definitions to and your partner must he/she give you the appropriate word.

PERSON B

Hyperglycaemia	High blood sugar levels
Insomnia	Inability to sleep
Dehydration	Loss of water from the body due to perspiration
Hypoglycaemia	Low blood sugar levels
Tremble	Shaking slightly with movements you can't control because you are ill, cold or frightened
Acute fatigue	Short term tiredness after eg a busy day. Recover after a good sleep.
Cardiac arrest	Stopping of the heart
Exhaustion	The state of being so tired that you have no energy left
Bleeding	The state of losing blood from the body
Anxiety	Worry
Vomit	You bring food and drink back up from your stomach, out through your mouth.
Shiver	Your body shakes because you are cold or frightened

PERSON A

Fracture	A break in for example a limb.
Fainting	A change of consciousness caused by a disturbance of blood flow to the brain
Diabetes	A condition where the body can't produce enough insulin needed for the metabolism of glucose sugar..
Dizziness	A feeling that you are losing your balance or about to fall down
Congested	A medical condition in which an organ of the body become blocked with liquid eg lungs
Cramps	A pain you feel caused by muscles suddenly contracting eg stomach, leg
Shock	A serious physical condition in which blood cannot circulate properly often as a result of injury
Ulcer	A sore area on your skin that is very painful and may bleed. It can be external or internal
Dysentery	An infection in a persons intestines that causes severe diarrhoea
Seizure	Another word for a fit
Nausea	Feeling going to be sick or vomit.
Drowsiness	Feeling sleepy

Activity 5

Match the following words to their definitions.

acceleration	10	1. A characteristic that someone has.
analogue	5	2. A pilot may mistake acceleration for pitch
autonomic	3	3. A reaction without conscious thought
barotrauma	14	4. An indication that something is wrong with your body or the way that it works that is taken as a sign of illness
conscious	22	5. An instrument which shows what it measure by a pointer which moves around a dial rather than show numbers
episodic	12	6. An involuntary response
fatigue	20	7. Another brain wave pattern in sleep
hyperventilation	13	8. Continue over a long time
illumination	17	9. Difficult to see or hidden
obscure	9	10. Increase in speed with time
otolith	18	11. Make less
incapacitation	21	12. Occurs at infrequent and irregular intervals
reduce	11	13. Over breathing
reflex	6	14. Pain or discomfort which arises when the pressure drops and the volume of gas within body cavities increase.
REM	15	15. Rapid eye movement
Re-synchronise	16	16. Re-set
Semicircular canals	19	17. The lighting
Slow-wave	7	18. The organ which responds to changes in velocity
somatogravic	2	19. These respond to angular acceleration
sustained	8	20. Tiredness
symptoms	4	21. Weakened in some way so that they are unable to do certain things
traits	1	22. You notice what is happening

Activity 6 CLOZE EXERCISE: Use the words in the box to complete the following sentences.

acceleration	analogue	autonomic
barotrauma	conscious	Episodic
fatigue.	hyperventilation	illumination
obscure	otolith	pilot incapacitation.
reduces	reflex	REM
re-synchronise	semicircular canals	slow-wave
somatogravic	Sustained	Symptoms
traits		

2. Gastro-intestinal problems are the most common cause of **pilot incapacitation.**
3. The **semicircular canals** detect angular acceleration
4. Excess alcohol reduces **REM** sleep
5. The illusion that the aircraft is climbing when it is actually accelerating is called **somatogravic** illusion
6. The function of **slow-wave** sleep is body repair.
7. Excessive noise levels cause **fatigue.**
8. Most circadian rhythms will only **re-synchronise** at a rate of 1 to 1 and a half hours per day.
9. Motor programmes or motor skills are behavioural sub-routines not requiring **conscious** thought.
10. **Episodic** memory is the memory of long term events held in the long term memory.
11. Trends and approximate values are better displayed by **analogue** instruments.
12. **Sustained** high g may cause grey-out then black-out.
13. The **symptoms** of hyperventilation include light headedness, rapid breathing, flushed complexion and tingling of the arms and hands.
14. Overbreathing causes **hyperventilation.**
15. The **otolith** organ will sense linear acceleration.
16. Denial is the tendency to not recognise adverse behavioural **traits** in oneself.
17. The **autonomic** nervous system controls normal body functions.
18. A **reflex** action bypasses conscious processes and acts instinctively.
19. Load factor is a measure of the **acceleration** experienced by a pilot.
20. Positive g **reduces** blood flow to the brain.
21. Rods are more sensitive to lower light levels of **illumination** but do not detect colour.
22. Pain in the middle ear and sinuses describes the condition of **barotrauma.**
23. Red cockpit lighting helps to preserve night vision but can **obscure** detail on WAC charts.

Human Performance Vocabulary

A collimating lens	A lens for rendering a beam of light parallel
A drinking binge	Someone drinks a great deal of alcohol over a short period of time
Abdominal pain	Pain in the stomach or intestinal area
Abnormal	Something that is unusual in a worrying or dangerous way
Abstinence	Deliberately not doing something that you enjoy doing
Acoustic	Related to sound or hearing
Acuity	The capacity of the eye to resolve detail.
Acute fatigue	Short term tiredness after eg a busy day. Recover after a good sleep.
Aerodontalgia	Tooth pain caused the expansion of gas on ascent to altitude.
Aggressive	Behaviour which has a quality of anger or determination that makes them ready to attack
Alveoli	Very fine air sac- like structures in the lungs.
Ambient temperature	The temperature of the air above the ground in a particular place
Ambiguity	A word or statement which is not clear and which can be understood in more than 1 way
Amphetamines	Drugs used as pep pills
Ample	Plenty, a lot
Anaemia	A medical condition in which you feel tired & look pale because of too few red blood cells or too little haemoglobin
Analgesics	Drugs used as pain relievers
Analogue display	An instrument which shows what it measure by a pointer which moves around a dial rather than show numbers
Anatomical	Refers to the structure of the bodies of people and animals
Angina	Pain in the chest indicating serious impairment of the coronary blood flow.
Anorexia	An illness where a person has a great fear of becoming fat so they refuse to eat and become thinner and thinner
Anthropodometry	The study of human measurement.
Antihistamines	Drugs used to clear up congestion associated with colds. They cause sleepiness
Anxiety	Worry
Aorta	Main blood vessel leaving the heart
Apathy	A state of mind where you are not interested in anything
Apnoea	A sleeping disorder meaning cessation of breathing for short periods of time.
Apprehension	Feelings of worry or fear about the future
Aqueous humour	The transparent fluid in the cornea of the eye
Arousal	The state of being alert
Assertion	A belief, fact or opinion you state firmly or forcefully
Astigmatism	Cornea out of shape causing a blurred vision
Atrium	The upper chamber of the heart
Autocratic	A person who makes decisions and gives orders without asking anyone else's advice.
Autokinetic illusion	The apparent movement of a stationary light. A condition experienced if during darkness a stationary light is stared at for many seconds
Barotrauma	Pain or discomfort which arises when the pressure drops and the volume of gas within body cavities increase.
Benzodiazepines	Drugs used by aircrew to promote sleep
Bereavement	Stress and feelings associated with loss of close family member
Bifocals	Glasses with 2 lenses to correct to near and distant vision.
Black out	
Bleeding	The state of losing blood from the body
Blinking	Opening and closing the eyes quickly
Blood donation	Giving blood to the blood bank
Boredom	The state of feeling tired and impatient because you have lost interest or have nothing to do.
Bronchial tree	The passageways which air passes into and through the lungs.
Caffeine	Is widely used in beverages eg coffee & tea. Too much causes sleeplessness & irregular heart rhythms.
Capillary	Very fine blood vessels
Carbon monoxide	A highly toxic odourless exhaust gas.
Cardiac arrest	Stopping of the heart
Cholera	A disease of poor hygiene and sanitation
Chronic fatigue	Long term tiredness
Chronobiology	The study of biological rhythms

Chunking	Grouping items to make it easier to remember them.
Cardiac arrest	Stopping of the heart
Circadian dysrhythmia	De-synchronisation of body rhythms due to time zone crossings
Circadian rhythms	Daily variations in our physiology.
Circulation	The movement of blood through your body
Cochlea	The inner ear
Cognitive coping	Involves reducing the emotional & physiological impact of stress on the individual.
Cones and rods	Light sensitive cells on the interior surface of the retina. Cones specialise in colour perception and fine detail. Rods chiefly responsible for night vision.
Cardiac arrest	Stopping of the heart
Congested	A medical condition in which an organ of the body become blocked with liquid eg congested lungs
Consciousness	The state of being awake
Consult	Ask someone for their opinion or advice
Convulsions	Uncontrolled movements
Coriolis illusion	The illusion of turning or accelerating in a different axis as a result of an abrupt head movement made during a prolonged constant rate turn
Cornea	Clear anterior most outer layer of the eye
Coronary artery disease	Narrowing or blockage of the arteries of the heart
Coronary thrombosis	A clot or block in a coronary blood vessel.
Cramps	A pain you feel caused by muscles suddenly contracting eg stomach cramp, leg cramp
Cyanosis	Lips and fingertips develop a blue colour – a symptom of hypoxia
Decibels	Noise levels are measured in this
Decompression	Loss of cabin pressure
Decongestant	A medicine which helps someone with a cold breathe more easily
Deference	The tendency to blame another person or circumstance for whatever goes wrong
Degradation	The process of causing the quality of something to become worse.
Dehydration	Loss of water from the body due to perspiration
Delegate	You give your power, responsibility or duties to someone so that they can act on your behalf.
Democratic	The idea that everyone should have an equal rights and should be involved with in making important decisions.
Denial	You refuse to accept that something is true
Detection	The act of noticing or sensing something
Deteriorate	Something becomes worse in condition or quality
Detrimental	Something has harmful or damaging effects
Diabetes	A condition where the body can't produce enough insulin needed for the metabolism of glucose sugar..
Diaphragm	The muscle between your lungs and stomach, used for breathing
Digital display	Devices which give information by displaying numbers rather than hands
Dim light	Rather dark and does not reflect or give out much light
Discomfort	A painful feeling in part of your body when you have been hurt or been uncomfortable for a long time
Discrepancy	An actual difference between 2 things which ought to be the same.
Disorientated	You no longer know your direction including the direction you have come from
Disparate	Things which are clearly different from each other in quality or type.
Divided attention	You have to focus on 2 or more things at once usually in a has harmful or damaging way
Dizziness	A feeling that you are losing your balance or about to fall down
Drilled	Something which is practised again and again
Drowsiness	Feeling sleepy
Dysentery	An infection in a persons intestines that causes severe diarrhoea
Echoic memory	Information in the auditory sensory store
Elation	A feeling of great happiness
Electrocardiogram (ECG)	This measures the electrical activity in the heart.
Electroculogram (EOG)	This measures the electrical activity in the eye muscles
Electroencephalogram (EEG)	This measures the electrical activity in the brain
Electromyogram (EMG)	This measures the electrical activity in the chin muscles
Eliminate	To remove something completely
Empty field myopia	Occurs when the eye lacks a distant reference point on which to focus. This causes the eye to adopt a resting position bringing the focus of the eye to about 1 – 2 metres

words (for international cadets)

Enhance	To improve the value or quality of something
Ephedrine	Drug often found in nasal sprays
Epilepsy	Refers to the symptoms which occur in response to a disorder of electrical activity to the brain.
Episodic memory	Includes our knowledge of specific events and is influenced by our expectations of what should happen
Erect	In a straight or upright condition
Ergonomics	The study of how equipment can be arranged in order that people can work with them more efficiently
Erratic behaviour	Behaviour which does not follow the norm
Euphoria	A feeling of great happiness and elation
Eustachian tube	A tube with soft walls connecting the middle ear with the nose and throat
Exertion	Physical effort or exercise
Exhale	To breathe out the air which is in your lungs
Exhaustion	The state of being so tired that you have no energy left
Exhort	You try hard to persuade someone to do something
Expectancy	
Expiration	The outward breath or a period of time that is ending
Extraversion	A personality type with the traits of being impulsive, boldness, dominance and sociability.
Extremities	The furthest end or edge of something
Extrinsic	Qualities which are not part of its basic structure or nature
Fainting (syncope)	A change of consciousness caused by a disturbance of blood flow to the brain
Fatigue	Tiredness. Can be divided into acute and chronic
Fixate (Verb)	To focus on something to an excessive degree
Flu	A heavy cold caused by a virus with the symptoms of headache, joint swelling, and sinus problems
Fovea	The most sensitive part of the retina, used for fine detail. Also called the macula
Fracture	A break in for example a limb.
Gall bladder	A gland associated with the liver involved with digestion
Gastroenteritis	Symptoms include, nausea & vomiting, diarrhoea, abdominal cramps & fever
Gout	A disease which causes someone's joints to swell painfully.
Gradient	A slope or degree of steepness of a slope
Grey out	A temporary condition in which vision is hazy, restricted or otherwise impaired due to insufficient oxygen
Haemoglobin	A molecule which transports oxygen within the red blood cell
Haemorrhaging	Serious bleeding from broken blood vessels inside a person's body.
Hepatitis	A serious disease which causes the patient's liver to become inflamed.
Hertz	The unit measuring frequency or pitch of sound
Hesitation	A pause or slight delay in something that you are doing
Hygiene	The practice of keeping you and your surroundings clean in order to prevent illness or the spread of disease
Hyperglycaemia	High blood sugar levels
Hypermetropia	Long sightedness. Also called Hyperopia. Distant objects are seen clearly. Closer objects are blurred. This is corrected by the use of a convex lens.
Hypertension	High blood pressure
Hyperventilation	Over-breathing
Hypoglycaemia	Low blood sugar levels
Hypothalamus	Mediates most of the body's subconscious responses
Hypothermia	Low body temperature resulting from exposure to cold
Hypothesis	An idea which is suggested as a possible explanation for a particular situation but which has not yet been proved.
Hypoxia	Describes the condition which occurs when the oxygen available to the tissues is insufficient to meet their needs
Iconic memory	Information in the visual sensory store
Impulsive	The tendency to commit to a certain course of action without giving thought to the consequences.
Incapacitation	Weakened in some way so that they are unable to do certain things
Induce	To cause a particular state or condition
Infarction	The death of an area of heart muscle due to interruption of blood supply
Ingestion	The taking in of something eg ingest food or a jet engine can ingest air or a bird

words (for international cadets)

Insomnia	Inability to sleep
Integrated	Closely joined so they become part of the whole
Intrinsic	Qualities which are part of its basic structure or nature
Introverted	These people spent more time thinking about themselves than the world around them.
Invulnerability	The feeling that you can't be harmed or damaged
Iris	The structure in the eye associated with controlling the amount of light entering
Joint	A part of your body where 2 bones meet and are able to move together
Kinaesthetics	The sense that detects and estimates motion without reference to vision or hearing
Leukocytes	White blood cells
Logical	Something which seems reasonable or sensible in the circumstances
Luminance	A soft glowing light
Macho	Personality type that will take risks – nothing he can't do or will try.
Maculus lutea	
Medication	Drugs prescribed by Doctors to help a medical condition.
Metabolism	The way that chemical processes in your body cause food to be used in an efficient way
Monotonous	A regular activity which you feel never changes and makes you feel bored
Motivated	You feel determined to achieve something and are willing to work hard.
Myopia	Short sightedness – Near objects are seen clearly, distant ones are blurred. Corrected with a concave lens.
Nausea	Feeling going to be sick or vomit.
Numerate information	Information presented in number form
Obese	A person who is very fat
Optimal	The best amount or rate
Osteoarthritis	A disease associated with wear and tear on the joints
Otic barotrauma	Pain & injury of the ear drum as a result of a failure to restore the correct pressure inside the middle ear.
Otolith organ	Made up of 2 components the utricle & saccule - Acts as a linear accelerometer and responds to straight-line changes in velocity (fore & aft, up-and-down)
Over-reliance	Depend too much on something
Pale	A light colour- if you are sick your face may look whiter than usual
Paradoxical sleep	
Parallax error	Head movements cause objects at varying distances to move in opposite directions relative to each other
Parameter	A factor or limit which affects the way something can or should be done or made
Parasympathetic nervous system	Controls the functions essential for life – respiration and circulation over which we have no control.
Percentile	In statistics one of the values of a variable which divides the distribution of the variable into 100 groups having equal frequency
Perception	A belief that you have as a result of realising or noticing something or an awareness of things by means of your senses in particular your sense of sight
Periphery	Things on the edge of something
Perspective	The ability to think clearly about a situation and consider it in relation to everything else
Perspiration	Sweating
Phychosis	A form of psychiatric illness associated with loss of insight or contact with reality.
Pituitary gland	The master gland located in the brain, effecting growth, sexual development and other functions of the body
Pooling	Grouping something eg ideas together
Pregnancy	A woman is developing a baby in her body
Preoccupation	Something you think about a lot because it's important to you
Preoccupied	You think a lot about a particular idea or problem and are therefore unaware of other things.
Presbycusis	Hearing deterioration as part of the process of growing old
Presbyopia	A form of long of long-sightedness associated with the process of growing old
Prescription drugs	Drugs ordered by a Doctor by writing on a form which is given to a chemist
Prickly sensation	The feeling that there are a lot of sharp points sticking into you
Proficiency	Ability or skill in something
Profuse	Used to indicate that the quantity of something is very large
Profuse sweating	Sweating a lot
Prolonged	An event which continues for a long time or longer than expected
Proprioceptive system	The systems of the body that give the pilot his sense of orientation eg ear and nerves in muscles

Pulse	The regular beating of blood through your body which you can feel when you touch particular parts of your body
Random	Something happens without a definite plan, pattern or purpose
Rash	A lot of spots or areas of rough skin that appear on areas of your skin
Reclined	Sitting with the upper part of your body supported at an angle
Recuperation	Recover your health or strength especially after you have been ill
Reflex action	An involuntary response evoked by a stimulus
Rehearse	Practice something in preparation for a 'performance'.
Remedy	A successful way of dealing with a problem
Resignation	An unwillingness to take control of a situation and do something different when the unexpected happens.
Resuscitation	To revive someone by who has stopped breathing eg by mouth to mouth
Retention span	The length of time you can remember something
Rhodopsin	Rods to function properly in night vision need to be primed with this substance
Risky shift	A group of people are more likely to take more risks than one individual would take if he/she acted alone.
Rupture	To tear or burst open eg a tyre on landing
Saccades	The movement of the eye in jerks with rests between them. (3 per second)
Sagging	To hang down loosely or sink towards the middle
Sedatives	Drugs often used to treat sleep disorders
Seizure	Another word for a fit
Semantic cues	Use of gestures, intonation change, eye contact to add to the meaning of language meaning
Semantic memory	Assigns meaning to symbols, codes or words such as logos or flags
Semicircular canals	These respond to angular acceleration
Sensory memory	Information is first directed here – it is constantly flooded with input from the environment and can hold it for a very short time
Sequential error	
Shift work	Working at non standard times eg night shift
Shivering	Your body shakes because you are cold or frightened
Shock	A serious physical condition in which blood cannot circulate properly often as a result of injury
Sinuses	Cavities within the skull which help the voice resonate and make the skull lighter
Slurred speech	Pronunciation of speech which is not clear or distinct often after drinking alcohol
Somatogavic illusion	A pilot may mistake acceleration for pitch
Somatosensory system	Pressure & position receptors throughout the body that provide information on eg the orientation of the seat in which we sit.
Somnambulism	Sleep walking
Somniloquism	Sleep talking
Span	Eg attention span
Spatial disorientation	Suffer from illusions of orientation
Sporadic	Something which happens at irregular intervals
Steadfast	You are determined that what you are doing is right and you refuse to change or give up
Stereopsis	Near objects produce images on each retina that are more different from one another than distant objects
Stimulants	A drug or medicine that increases heart rate & makes you less likely to sleep
Stroke	A sudden illness like a heart attack which can cause brain damage or paralysis in part of the body
Submissive	Behaviour in a quiet obedient way, doing whatever someone wants you to do
Subordinate	Something/ one which is less important to another thing / one
Supplementary	Something is added to something else in order to make it more complete
Susceptible	Likely to be affected by something or someone ie disease.
Sustain	Keep something going for a long time
Sway (verb)	The power someone has to influence someone to make you decide to one thing rather than another thing
Sympathetic nervous system	Provides us with a way to cope with a sudden new source of stress. Flight or fight and the associated release of adrenalin
Symptoms	An indication that something is wrong with your body or the way that it works that is taken as a sign of illness
Synchronise	To do something or set something at the same time
Syncope	A change of consciousness caused by a disturbance of blood flow to the brain

Systematic	Activity or behaviour that follows a fixed plan or plan so that things are done in a thorough and efficient way
Temper	The tendency that you have to become angry or to stay calm.
Tendons	A strong cord in a person or animal that joins a muscle to a bone
The bends	Acute pain in arms, legs & joints resulting from the formation of bubbles in body fluids and tissues caused by exposure to reduced barometric pressure
Thrombosis	A clot or block
Tingling	A slight prickling or stinging feeling in a part of your body ("Pins and needles")
To obscure detail	To hide the detail
Tolerance	The ability of a person to endure something unpleasant or painful
Tourniquet	A strip of cloth that you tie tightly round an injured limb (arm or leg) in order to stop it bleeding
Trachea	The wind pipe. Air enters via nose & mouth and passes down the trachea
Trait	A characteristic
Tranquillisers	Drugs used to treat anxiety or tension
Transmeridian dyschronisation	Jet lag
tremble	Shaking slightly with movements you can't control because you are ill, cold or frightened
Tumbling	Rolling over and over
Tympanic membrane	The eardrum
Typhoid	An infectious disease spread by dirty water or food
Ulcer	A sore area on your skin that is very painful and may bleed. It can be external or internal
Urine	The yellow liquid that you get rid of when you go to the toilet
Vaccinations	Protection against a disease
Ventricle	The lower chamber of the heart
Vertebrae	The bones of which the spine (backbone) are composed
Vertigo	A feeling of dizziness and sickness caused by looking down from a high place.
Vestibular system	Gives our sense of balance through the semicircular canals
Vigilance	Careful attention that you give to a situation, so that you notice any danger that might present itself
Voluntary	Describes action that you do freely or offer to do.
Vomit	You bring food and drink back up from your stomach, out through your mouth.
Weariness	The feeling of being very tired
Yawning	Opening the mouth and breathing in more air than normal, often when you are tired or not interested in something.
Zeitgeber	Cues eg the day & night cycle serve to synchronise endogenous rhythm

ACTIVITY 1

Which body part or function do the following words refer to:

Acoustic	
Acuity	
Alveoli	
Alveoli	
Blinking	
Capillary	
Cochlea	
Cones & rods	
Cornea	
Cramps	
Decibels	
Diaphragm	
Electrocardiogram (ECG)	
Eustachian tube	
Exhale	
Expiration	
Fovea	
Fracture	
Haemoglobin	
Iris	
Otolith organ	
Pulse	
Resuscitation	
Rhodopsin	
Saccades	
Semicircular canals	
Sinuses	
Stroke	
Tympanic membrane	
Vestibular system	

ACTIVITY 1. Consolidation

rods and cones	rhodopsin	sinuses
fovea	electrocardiograph	vestibular system,
cochlea	acuity	haemoglobin
cramps	otolith organ	cornea
eustachian tube	exhale	strokes
alveoli	decibels	iris
expirations	semi-circular canals	acoustic

READ THE SENTENCES AND FILL IN THE BLANKS WITH A WORD FROM THE TABLE.

1. Unless rehearsed, inputs will be lost in 15 - 30 sec. Information is stored as an _____ or spatial or spatial code.
2. The clarity with which we see an object is at a maximum when the light falls on the centre of the retina (fovea) is called Visual _____
3. Gas will diffuse through a membrane from high to low pressure. This is the principle that allows the exchange of O₂ and CO₂ across the _____ membranes in the lungs.
4. The _____, which converts the mechanical vibrations arriving via the ossicles into nerve signals that are transferred to the brain to be interpreted as sounds.
5. The retina contains two different types of photoreceptor cells, (they are photosensitive – that is, sensitive to light) known as _____, which are responsible for providing vision.
6. The _____ is a non-vascular (contains no blood vessels), transparent fibrous coat that covers the iris.
7. Physical exhaustion is indicated by slow movement, increased effort to carry out work, complains of _____ or stiff muscles.
8. Sound is measured in two ways: The loudness which is measured in _____ (dB); and the pitch, or frequency, which is measured in Hertz (Hz).
9. The _____ measures electrical activity of the heart and graphs this electrical activity on paper.
10. The _____ connects the middle ear to the nasal passages, which finally terminates at the back of the throat.
11. To help clear the ears on descent, swallowing, yawning and chewing are useful. If none of these works, then the Valsalva Manoeuvre can be used. Close the mouth and pinch the nose, then gently _____ into the pharynx and nasal region.
12. The more violent _____ that accompany sneezing and coughing will spread millions of pathogen carrying droplets at great speed over considerable distances.

13. There is a small central area of the retina known as the _____, which contains a large number of cones, but no rods,.
14. Oxygen is transported around the body by the _____ in the blood.
15. The _____ is a coloured muscular diaphragm, situated behind the cornea and contains an aperture known as the pupil.
16. The _____ works in a similar manner to the semi-circular canals; it also contains sensitive hairs and fluid.
17. Within the rods, a chemical called _____ is necessary for the full contrast sensitivity of the rods.
18. Whilst the _____ are able to determine angular accelerations, they are unable to perceive angular velocity.
19. _____ are air cavities in the cranial bones, especially those near the nose and connecting to it.
20. _____ are usually caused by a blockage of, or by a burst blood vessel in the brain.
21. The _____ or *balance system*, is the sensory system that provides the dominant input about our movement and orientation in space, and is situated in the inner ear.

ACTIVITY 2 Explain the following words and match them with their opposites.

	Abnormal	1. Beneficial
	Acute	2. chronic
	Ample	3. Consistent
	Autocratic	4. Democratic
	Deteriorate	5. Deteriorate
	Detrimental	6. Impervious
	Erratic	7. Improve
	Monotonous	8. Incompetent
	Periphery	9. insufficient
	Proficient	10. Mainstream
	Reclined	11. normal
	Recuperate	12. Quit
	Sporadic	13. Regular
	Susceptible	14. Upright
	Sustain	15. Varied

ACTIVITY 2. Consolidation:

susceptible	normal	chronic
improves	erratic	consistent
deteriorate	Sporadic	severe
periphery	beneficial	upright
regular	abnormal	dehydration.
insufficient	varied	acute

READ THE SENTENCES AND FILL IN THE BLANKS WITH A WORD FROM THE TABLE.

1. The electrocardiograph gives the doctor an indication of any _____ activity of the heart.
2. Stress may be _____ (short-term), building up in a few hours or days, but being resolved fairly quickly. Or it may be _____, (longer-term) affecting the person for months or years.
3. Exposure to air temperatures above 30°C requires 250ml of water every 30 minutes to prevent _____.
4. Performance begins to _____ in temperatures above 32° C.
5. An alcohol hangover is associated with a variety of symptoms that may include _____ motor functions and trouble sleeping.
6. The clarity with which we see an object deteriorates rapidly as the image moves away from the fovea towards the _____ of the retina.
7. _____ errors are difficult to predict as they are infrequent and unrelated. They are usually resistant to correction through training or indoctrination.
8. A poor diet makes a body _____ to illness. Missing meals can affect performance.
9. A _____ lack of oxygen for a sustained period will lead to unconsciousness, coma, brain damage and eventually, death.
10. If nausea continues on subsequent flights, medication may be _____.
11. Every individual is likely to have their own characteristic and _____ response pattern to stressful events.
12. Exercise _____ both physical and mental performance as well as assisting towards a longer, healthier and more active and pleasurable life.
13. Further increase in 'g will inevitably lead to _____ oxygen and sugar being supplied to the brain, resulting in a decrease in brain function and eventually loss of consciousness.

14. A useful measure of fitness is the time taken for the heart rate to return to near the resting rate. As your fitness increases, the time required to return to a near _____ heart rate will reduce.
15. All pilots will have mandatory _____ audiograms (hearing tests) as part of their medical examination requirements.
16. The inner ear may falsely suggest that the head is tilted while the eyes and somatosensory systems suggest that one is _____.
17. Ozone exposure limits are many, _____ and complex, with various aviation regulatory authorities and environmental protection agencies setting differing 'safe' limits.

ACTIVITY 3 : Match these words to their definitions

PERSON B

	Hyperglycaemia	1. High blood sugar levels
	Acute fatigue	2. Inability to sleep
	Anxiety	3. Loss of water from the body due to perspiration
	Bleeding	4. Low blood sugar levels
	Cardiac arrest	5. Shaking slightly with movements you can't control because you are ill, cold or frightened
	Dehydration	6. Short term tiredness after eg a busy day. Recover after a good sleep.
	Exhaustion	7. Stopping of the heart
	Hypoglycaemia	8. The state of being so tired that you have no energy left
	Insomnia	9. The state of losing blood from the body
	Shiver	10. Worry
	Tremble	11. You bring food and drink back up from your stomach, out through your mouth.
	Vomit	12. Your body shakes because you are cold or frightened

Ask your partner to explain the words below you don't know.

Congested
Cramps
Diabetes
Dizziness
Drowsiness
Dysentery
Fainting
Fracture
Nausea
Seizure
Shock
Ulcer

ACTIVITY 3 : Match these words to their definitions

PERSON A

	Congested	1. A break in for example a limb.
	Cramps	2. A change of consciousness caused by a disturbance of blood flow to the brain
	Diabetes	3. A condition where the body can't produce enough insulin needed for the metabolism of glucose sugar..
	Dizziness	4. A feeling that you are losing your balance or about to fall down
	Drowsiness	5. A medical condition in which an organ of the body become blocked with liquid eg lungs
	Dysentery	6. A pain you feel caused by muscles suddenly contracting eg stomach, leg
	Fainting	7. A serious physical condition in which blood cannot circulate properly often as a result of injury
	Fracture	8. A sore area on your skin that is very painful and may bleed. It can be external or internal
	Nausea	9. An infection in a persons intestines that causes severe diarrhoea
	Seizure	10. Another word for a fit
	Shock	11. Feeling going to be sick or vomit.
	Ulcer	12. Feeling sleepy

Ask your partner to explain the words below you don't know.

Hyperglycaemia
Acute fatigue
Anxiety
Bleeding
Cardiac arrest
Dehydration
Exhaustion
Hypoglycaemia
Insomnia
Shiver
Tremble
Vomit

ACTIVITY 4 :

Look at the following definitions.. Complete the words and after you have finished, Read out the definitions to and your partner must he/she give you the appropriate word.

PERSON B

H		High blood sugar levels
I		Inability to sleep
D		Loss of water from the body due to perspiration
H		Low blood sugar levels
T		Shaking slightly with movements you can't control because you are ill, cold or frightened
A	f	Short term tiredness after eg a busy day. Recover after a good sleep.
C	a	Stopping of the heart
E		The state of being so tired that you have no energy left
B		The state of losing blood from the body
A		Worry
V		You bring food and drink back up from your stomach, out through your mouth.
S		Your body shakes because you are cold or frightened

PERSON A

F		A break in for example a limb.
F		A change of consciousness caused by a disturbance of blood flow to the brain
D		A condition where the body can't produce enough insulin needed for the metabolism of glucose sugar..
D		A feeling that you are losing your balance or about to fall down
C		A medical condition in which an organ of the body become blocked with liquid eg lungs
C		A pain you feel caused by muscles suddenly contracting eg stomach, leg
S		A serious physical condition in which blood cannot circulate properly often as a result of injury
U		A sore area on your skin that is very painful and may bleed. It can be external or internal
D		An infection in a persons intestines that causes severe diarrhoea
S		Another word for a fit
N		Feeling going to be sick or vomit.
D		Feeling sleepy

ACTIVITY 4: CONSOLIDATION

dehydration	congested	diabetes
shivering	bleeding	seizure
anxiety	dizziness	drowsiness
vomiting	fainting	exhaustion
Hypoglycemia	Acute Fatigue	
nausea	Insomnia	

READ THE SENTENCES AND FILL IN THE BLANKS WITH A WORD FROM THE TABLE.

1. _____ is often caused by intense mental or physical activity over a relatively short time frame and requires a relatively short recovery time.
2. Consideration of one's emotional state is also an important consideration for pilots. It is normal for all of us to occasionally suffer some mild _____, depression or fear.
3. Hypaemic Hypoxia occurs when there is a decrease in the amount of red blood cells (RBCs) available for O₂ transport. It may be because of blood loss from severe _____ (internal, or external), blood donation, from menstruation, chronic infection, or an iron deficiency in the diet causing anaemia.
4. Exposure to air temperatures above 30°C requires 250ml of water every 30 minutes to prevent _____. Any more than this, the body will excrete as urine.
5. Physical _____ can be defined as slow movement, increased effort to carry out work, complaints of cramps or stiff muscles.
6. _____ can produce a variety of symptoms and effects but the principal problems arise from an inadequate supply of glucose as fuel to the brain, resulting in impairment of function.
7. The inability to sleep under normal favourable conditions is called _____.
8. In stage 1 of hypothermia, the body temperature drops by 1-2°C below normal temperature and mild to strong _____ occurs.
9. Common signs and symptoms of airsickness include: nausea, _____, vertigo, loss of appetite, cold sweating, skin pallor, difficulty concentrating, confusion, drowsiness, headache, and increased fatigue.
10. One of the arguments against automation is that new tasks of reprogramming are often required in _____ airspace.
11. High blood pressure (or hypertension) can lead to a number of health problems, including coronary artery disease, strokes and _____.
12. Low blood pressure is less of a problem but can result in _____ or fainting.

13. The hypoxic person will suffer faulty judgement, difficulty in concentrating, indecision and _____.
14. Generally, blood pressure repeatedly greater than 140/90 is considered high and will be the cause of some concern. Low blood pressure is less of a problem but can result in dizziness or _____.
15. Alcohol's effect on the stomach lining can result in _____.
16. The term fit (or _____) usually relates to epilepsy, which arises from problems associated with abnormal electrical activity in the brain.

Activity 5

Match the following words to their definitions.

acceleration		1. A characteristic that someone has.
analogue		2. A pilot may mistake acceleration for pitch
autonomic		3. A reaction without conscious thought
barotrauma		4. An indication that something is wrong with your body or the way that it works that is taken as a sign of illness
conscious		5. An instrument which shows what it measure by a pointer which moves around a dial rather than show numbers
episodic		6. An involuntary response
fatigue		7. Another brain wave pattern in sleep
hyperventilation		8. Continue over a long time
illumination		9. Difficult to see or hidden
obscure		10. Increase in speed with time
otolith		11. Make less
incapacitation		12. Occurs at infrequent and irregular intervals
reduce		13. Over breathing
reflex		14. Pain or discomfort which arises when the pressure drops and the volume of gas within body cavities increase.
REM		15. Rapid eye movement
Re-synchronise		16. Re-set
Semicircular canals		17. The lighting
Slow-wave		18. The organ which responds to changes in velocity
somatogravic		19. These respond to angular acceleration
sustained		20. Tiredness
symptoms		21. Weakened in some way so that they are unable to do certain things
traits		22. You notice what is happening

Activity 6 CLOZE EXERCISE: Use the words in the box to complete the following sentences.

acceleration	analogue	autonomic
barotrauma	conscious	Episodic
fatigue.	hyperventilation	illumination
obscure	otolith	pilot incapacitation.
reduces	reflex	REM
re-synchronise	semicircular canals	slow-wave
somatogravic	Sustained	Symptoms
traits		

- Gastro-intestinal problems are the most common cause of _____
- The _____ detect angular acceleration
- Excess alcohol reduces _____ sleep
- The illusion that the aircraft is climbing when it is actually accelerating is called _____ illusion
- The function of _____ sleep is body repair.
- Excessive noise levels cause _____
- Most circadian rhythms will only _____ at a rate of 1 to 1 and a half hours per day.
- Motor programmes or motor skills are behavioural sub-routines not requiring _____ thought.
- _____ memory is the memory of long term events held in the long term memory.
- Trends and approximate values are better displayed by _____ instruments.
- _____ high g may cause grey-out then black-out.
- The _____ of hyperventilation include light headedness, rapid breathing, flushed complexion and tingling of the arms and hands.
- Overbreathing causes _____
- The _____ organ will sense linear acceleration.
- Denial is the tendency to not recognise adverse behavioural _____ in oneself.
- The _____ nervous system controls normal body functions.
- A _____ action bypasses conscious processes and acts instinctively.
- Load factor is a measure of the _____ experienced by a pilot.
- Positive g _____ blood flow to the brain.
- Rods are more sensitive to lower light levels of _____ but do not detect colour.
- Pain in the middle ear and sinuses describes the condition of _____
- Red cockpit lighting helps to preserve night vision but can _____ detail on WAC charts.