

Year 11 Science Personalised Learning Checklist- Autumn 1
Evolving Organisms

	Learning Statements	Tier	R	A	G
1	Describe the role of Carl Linnaeus in development of a classification system (kingdom, phylum, class, order, family, genus, species)	F			
2	Explain the binomial naming system of organisms	F			
3	Define 'species' (linking to future fertility and breeding)	F			
4	Explain how classification models have developed over time due to improvements in microscopy and biochemistry)	F			
5	Describe and explain the theory of 'natural selection' and 'evolution'	F			
6	Describe the evidence for evolution including antibiotic resistant and the fossil record	F			
7	Describe what a fossil is and explain how they form and explain why these cannot be used as evidence for how life began on Earth	F			
8	Interpret information from evolutionary trees	F			
9	Explain what extinction is and describe factors which may contribute to the extinction of a species	F			
10	Describe selective breeding and explain the potential benefits and risks of this process (linking to disease resistance in crops, animals with more milk and meat, large or unusual flowers and domestic dogs with a gentle nature)	F			
11	Define 'genetic engineering'	F			
12	Describe the main steps in genetic engineering	HT			
13	Give examples of genetic engineering (including crop resistance to diseases, insect attack and herbicides, crops with bigger, better fruits and bacterial cells used in the production of insulin)	F			
14	Evaluate the use of genetic engineering and modification and describe the potential uses of this in the future	F			
15	Describe the structure of the nervous system	F			
16	Explain how it is adapted for its function and why it is important	F			
17	Describe the pathway of a message from stimulus to response	F			
18	Describe the design of a reflex arc and explain its purpose	F			
19	Use tables and graphs to extract information about reflex actions	F			
20	RP Reaction Time: Plan and carry out an investigation into the effect of a factor on human reaction time	F			
21	Define 'homeostasis' and explain why it is important	F			
22	List three factors controlled by homeostasis in the human body (blood glucose concentration, temperature, water levels)	F			
23	Explain how these automatic systems are controlled	F			
24	Describe the principals of hormonal coordination including what makes up the endocrine system	F			
25	Describe what hormones are and label six glands in the body	F			
26	Describe the role of the pituitary gland	F			
27	Explain the roles of thyroxine (produced by the thyroid gland) and adrenaline (produced by the adrenal gland) linking this to negative feedback loops (HT only)	HT			
28	Describe and explain how the body controls blood glucose concentration (making reference to glucose, glycogen, glucagon, negative feedback cycle, insulin and the pancreas)	F			
29	Explain type 1 and type 2 diabetes and how they can be treated	F			
30	Compare and contrast the two types of diabetes	F			
31	Compare data (from graphs) regarding blood glucose levels in people with and without diabetes	F			
32	Describe the roles of FSH, LH, Oestrogen and progesterone in the menstrual cycle	F			
33	Describe the roles of oestrogen and progesterone in puberty	F			
34	Interpret graphs relating to hormone levels in the menstrual cycle (HT only)	HT			
35	Link hormone cycles to ovulation and menstruation	F			
36	Evaluate hormonal and non-hormonal methods of contraception (oral, injection, implant, skin patch, condoms, diaphragms, intrauterine device, spermicidal agents, abstinence, sterilisation)	F			
37	Explain why issues around contraception are not answered solely by the field of Science	F			
38	Explain the process of embryo screening and evaluate based on ethical, social and economic perspectives	F			
39	Explain IVF (in vitro fertilisation) (HT only)	HT			
40	Explain how developments in microscopy have enabled IVF treatments to be improved (HT only)	HT			
41	Evaluate social and ethical issues and risks from the perspective of patients and doctors in IVF (HT only)	HT			
42	Compare nervous system and hormonal responses	F			