**BIOLOGY**

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|  | **Monday** | **Tuesday** | **Wednesday** | **Thursday** | **Friday** |
| **Week 1** | **Unit Introduction: Biology and its links to mental health**  Hook students with staggering statistics of mental health in adolescent years  Age of onset of most mental health is 14-20 yr  Introduce concept in general  **KWL** Prior assessment of knowledge  **Whole group discussion:** Mental health  What is mental health?  Biological, social, neurological  How does mental health affect teenagers?  **Formative Assessment**: Question box - for students to ask questions anonymously to be answered by teacher next week in class | **Whole group direct instruction:**  Unit A: Nervous and Endocrine System Introduction  **Discuss** Biological processes that mediate the interactions between humans and their environment to maintain equilibrium  Discuss the biological basis of neurological diseases  **Learning Activity:** Think-pair-share with a partner on what you know  Return to **whole class discussion** on nervous system | **Small group activity:**  What do you know about the Central Nervous System? Discuss in small groups of 5  **Whole group:** The brain and spinal cord (CNS)  Cerebral hemispheres and lobes  Neurons  Axons  Neurotransmitters  **Whole group discussion:** Mental health and links to CNS and neurotransmitters  **Formative assessment:**  Kahoot -  CNS | **Whole group direct instruction:**  general structure and function of a neuron and myelin sheath, explaining the formation and transmission of an action potential, including all-or-none response and intensity of response; the transmission of a signal across a synapse  **Whole group discussion: Q&A** Formative assessment of students current understanding | **Whole group direct instruction**:  Neurotransmitter  Main chemicals and transmitters involved in biochemical aspects of mental health  i.e., norepinephrine, acetylcholine, cholinesterase, dopamine, serotonin  **Whole class discussion:** How do these neurotransmitters relate to mental health?  **Formative assessment:** Provide prompt and quick feedback to students questions and answers.  **Summative Assessment:**  Quiz 30 questions: Concepts from the week including mental health, CNS, neurons, axons, myelin sheath, neurotransmitters  **Week review**  Next week intro: Small group inquiry project |
| **Week 2** | **Neurotransmitter inquiry Project:** Digital Presentation of findings on Friday  Form groups of 3 (21 students total, 7 groups)  Work in cooperative groups to research and analyze 1 neurotransmitter  **Initiating and Planning**  Students will  formulate questions about observed relationships between neurotransmitters and mental health and plan investigations/inquiry  **Formative Assessment:** Conference with groups on initiating and planning stages | **Neurotransmitter Inquiry**  **Research period**  in the library  **Whole group instruction:**research strategies  Students will  work collaboratively in addressing problems and apply the skills and conventions of science in communicating information and ideas  Students will work cooperatively with group members to investigate neurological (mental health) disorders  Students will investigate and integrate information from library and electronic sources  Groups will  research on the computers together  Observe and coach students as they work  **Formative assessment:**  **Triangulation:**  Circulate and conference with small groups to collect triangulated evidence | **Neurotransmitter Inquiry Small Group work period:**  Continue research and prepare draft for digital presentation of work  **Communication and Teamwork**  Students will work collaboratively in addressing problems and apply the skills and conventions of science in communicating information and ideas  **Formative**:  Conference with groups to provide support with communication and teamwork | **Small Group Work Period:**  Classroom group work day  Groups compile research on their neurotransmitter and prepare it in digital format of choice  (scaffolding to digital documentary final project)  **Formative Assessment:**  Triangulation  Small group conferencing  **Whole class discussion:** Due dates, presentation tomorrow, 3 min., discuss expectations  **Formative Assessment & Summative:**  Peer evaluations  Self-evaluations | **Neurotransmitter Presentations**  Triads present their inquiry findings on their neurotransmitter to whole class  **Summative assessment:**  Presentation & Teamwork- narrative feedback and grade  **Formative Assessment:**  Student post what they found on D2L for other students to see, respond to 2 peers  **Formative and summative:** Self and teacher evaluation of learning   /30 |
| **Week3** | **Whole group:**  Lab prep and lab orientation  Explain procedures  Safety & lab expectations  **Lab Assignment Overview:**  Observations  Drawings/Diagrams | **Lab Day 1**  Lab groups of 3  Students will use a microscope and prepared slides to observe neurons and synapses  **Performing and Recording**  Students willconduct investigations into relationships between and among observable variables and use a broad range of tools and techniques to gather and record data and information | **Lab Day 2**  Students will observe the principal features of a mammalian brain  **Brain Stations**:  Brain models, computer simulations of brain (technology) and brain dissections  Students rotate through 7 stations  In class time to complete lab assignment | **Summative Assessment:**  Lab Assignment: observations and diagrams/drawings of slides (neurons and synapses) and brain  (Digital format)  Work period  Submit lab write up on D2L | **Summative Unit Test:**  60 questions  All topics covered in Week 1, 2, 3  i.e. Central Nervous System, Lab material, Neurotransmitters, biological basis of mental health, mental health  **Whole group discussion** on final project - Digital Documentary/awareness campaign  Review the rubric for digital documentary final project so students understand criteria  **Organizer:** Digital Documentary prep  Identify and divide tasks between triads for final project  **Small Groups:** work on final project, brainstorming and planning |
| **Week 4** | **Week 4**  **Small group work**: Awareness Campaign Digital Documentary  triads for final project  **Small Groups:** work on final project, brainstorming and planning for teenage mental health awareness and understanding | **Work period:**  Triads work in small groups - digital documentary/awareness campaign  on teenage mental health awareness and understanding  **Formative Assessment:**  Conference with groups - provide learning feedback loops | **Whole group discussion:** Friday is school assembly for awareness campaign with whole school, parents, community members and experts invited  **Work Period:**  Group work day on digital documentary and awareness campaign | **Rehearsal period**  **Final Project due:**  Rehearse for assembly in the gymnasium  **Formative Assessment:**  Feedback from teacher on rehearsal - things that work great, things to modify for tomorrow | **Digital Documentary & Mental Health Awareness Campaign**  **Whole school assembly**  School assembly for awareness campaign with whole school, parents, community members and experts invited to speak  Students present their digital documentary on mental health in adolescents: Understanding (Biology & CALM), awareness (Social Studies)  and coping (PE)  **Summative Assessment:** Rubric on Final Project |