1. Record Nr. UNINA9910822363303321

Titolo	Argument-driven inquiry in biology : lab investigations for grades 9-12 / / Victor Sampson [and six others]
Pubbl/distr/stampa	Arlington, Virginia : , : NSTA Press, National Science Teachers Association, , [2014] 2014
ISBN	1-938946-66-9
Descrizione fisica	1 online resource (xix, 418 pages) : illustrations
Collana	Gale eBooks
Disciplina	570.712
Soggetti	Biology - Study and teaching (Secondary)
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes index.
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Section 1 : Using argument-driven inquiry -- Argument-driven inquiry -- Lab investigations -- Section 2 : Life sciences core idea 1 : From molecules to organisms: structures and processes -- Introduction lab -- Lab 1. Osmosis and diffusion: why do red blood cells appear bigger after being exposed to distilled water? -- Application labs -- Lab 2. Cell structure: how should the unknown microscopic organism be classified? -- Lab 3. Cell cycle: do plant and animal cells spend the same proportion of time in each stage of the cell cycle? -- Lab 4. Normal and abnormal cell division: which of these patients could have cancer? -- Lab 5. Photosynthesis: why do temperature and light intensity affect the rate of photosynthesis in plants? -- Lab 6. Cellular respiration: how does the type of food source affect the rate of cellular respiration in yeast? -- Lab 7. Transpiration: how does leaf surface area affect the movement of water through a plant? -- Lab 8. Enzymes: how do changes in temperature and pH levels affect enzyme activity? -- Section 3 : Life sciences core idea 2 : Ecosystems: interactions, energy, and dynamics -- Introduction labs -- Lab 9. Populations growth: how do changes in the amount and nature of the plant life available in an ecosystem influence herbivore population growth over time? -- Lab 10. Predator-prey population size relationships: which factors affect the stability of a predator-prey population size relationship? -- Lab 11. Ecosystems and biodiversity: how does food web complexity affect the

biodiversity of an ecosystem? -- Lab 12. Explanations for animal behavior: why do great white sharks travel over long distances? -- Application labs -- Lab 13. Environmental influences on animal behavior: how has climate change affected bird migration? -- Lab 14. Interdependence of organisms: why is the sport fish population of Lake Grace decreasing in size? -- Lab 15. Competition for resources: how has the spread of the Eurasian collared-dove affected different populations of native bird species? -- Section 4 : Live sciences core idea 3 : Heredity: inheritance and variation of traits -- Introduction labs -- Lab 16. Mendelian genetics: why are the stem and leaf color traits of the Wisconsin fast plant inherited in a predictable pattern? -- Lab 17. Chromosomes and karyotypes: how do two physically healthy plants produce a child with Down syndrome and a second child with Cri du Chat syndrome? -- Lab 18. DNA structure: what is the structure of DNA? -- Lab 19. Meiosis: how does the process of meiosis reduce the number of chromosomes in reproductive cells? -- Application labs -- Lab 20. Inheritance of blood type: are all of Mr. Johnson's children his biological offspring? -- Lab 21. Models of inheritance: which model of inheritance best explains how a specific trait is inherited in fruit flies? -- Section 5 : Life sciences core idea 4 : Biological evolution: unity and diversity -- Introduction labs -- Lab 22. Biodiversity and the fossil record: how has biodiversity on Earth changed over time? -- Lab 23. Mechanisms of evolution: why will the characteristics of a bug population change in different ways in response to different types of predation? -- Application labs -- Lab 24. Descent with modification: does mammalian brain structure support or refute the theory of descent with modification? -- Lab 25. Mechanisms of speciation: why does geographic isolation lead to the formation of a new species? -- Lab 26. Human evolution: how are humans related to other members of the family Hominidae? -- Lab 27. Whale evolution: how are whales related to other mammals? -- Section 6 : Appendixes -- Standards alignment matrixes -- Options for implementing ADI lab investigations -- Investigation proposal options -- Peer-review guide and instructor scoring rubric.

Sommario/riassunto

Are you interested in using argument-driven inquiry for high school lab instruction but just aren't sure how to do it? You aren't alone. This book will provide you with both the information and instructional materials you need to start using this method right away. Argument-Driven Inquiry in Biology is a one-step source of expertise, advice, and investigations. Because the authors are veteran teachers, they designed Argument-Driven Inquiry in Biology to be easy to use and aligned with today's standards. The labs include reproducible student pages and teacher notes. The investigations will help your students learn the core ideas, crosscutting concepts, and scientific practices found in the Next Generation Science Standards. In addition, they offer ways for students to develop the disciplinary skills outlines in the Common Core State Standards.