

Table S2 Connections between lecture topics and Colorado State middle school Science standards and learning expectations

Lecture topic	State standard(s) (https://www.cde.state.co.us/apps/standards/7,38,16)	Learning expectation(s)	Science curriculum unit
<i>S. cerevisiae</i> as a microbe and its basic life cycle	All living things are made up of cells, which is the smallest unit that can be said to be alive	Changes in environmental conditions can affect the survival of individual organisms, populations, and entire species	Microbiome, Traits and Reproduction
	Organisms reproduce, either sexually or asexually, and transfer their genetic information to their offspring		
Fermentation-focused metabolism of <i>S. cerevisiae</i> , natural habitats and industrial use	Organisms and populations of organisms are dependent on their environmental interactions both with other living things and with nonliving factors	Explain and illustrate with examples how living systems interact with the biotic and abiotic environment	Metabolism, Microbiome
<i>HO</i> gene function in mating-type switching, non-functional <i>ho</i> alleles, lack of selection for <i>HO</i> when strains don't sporulate	Heredity explains why offspring resemble, but are not identical to, their parents and is a unifying biological principle. Heredity refers to specific mechanisms by which characteristics or traits are passed from one generation to the next via genes	Analyze how various organisms grow, develop, and differentiate during their lifetimes based on an interplay between genetics and their environment	Traits and reproduction
	Genetic variations among individuals in a population give some individuals an advantage in surviving and reproducing in their environment	Explain how biological evolution accounts for the unity and diversity of living organisms	
	Adaptation by natural selection acting over generations is one important process by which species change over time in response to changes in environmental conditions		
Species identification by DNA "barcode" sequencing	Genetic variations among individuals in a population give some individuals an advantage in surviving and reproducing in their environment	Explain how biological evolution accounts for the unity and diversity of living organisms	Traits and reproduction