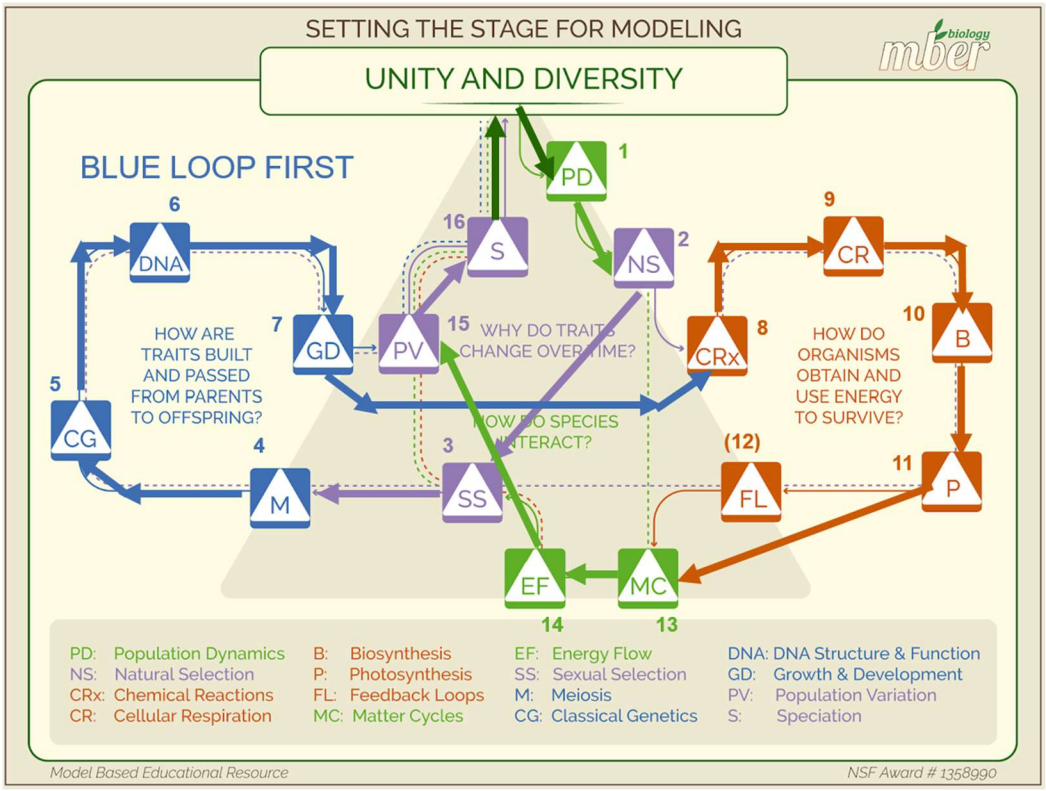
“Blue Loop First” Sequence & Pacing Guide



Unit Name	Minimum Minutes	Est Minutes	Min Days	Est Days	Cumulative Days	Cumulative Weeks
Opening Admin Time			5	10	10	2
Setting the Stage	NA	NA	10	15	25	5
Unity and Diversity 1	95	110	2	2	27	6
Population Dynamics	250	285	6	8	35	7
Natural Selection	475	605	11	14	49	10
Sexual Selection	55	90	2	2	51	11
Meiosis	180	240	5	6	57	12
Classical Genetics	495	705	13	14	71	15
DNA (and G&D Phenomenon)	350	550	10	13	84	17
Growth and Development	290	495	9	11	95	19
Chemical Reactions (EtOH)	340	465	9	10	105	21
(Chemical Reactions, Electrolysis)	*390*	*490*	*9*	*11*	*+1*	-
Cellular Respiration	280	395	8	10	115	23
Biosynthesis	130	280	6	6	121	25
Photosynthesis	355	360	7	8	129	26
(Feedback Loops)	*145*	*170*	*4*	*4*	*+4*	-
Matter Cycles	125	150	3	3	132	27
Energy Flow	110	135	3	3	135	27
Population Variation	295	415	8	10	145	29
Speciation	NA	NA	NA	7	152	31
Unity and Diversity 2	NA	NA	NA	2	154	31
*Remaining for Exams / Subs / Other ----------> *					*26*	*5*

key to table above

minimum minutes = sum of lower estimate times for each learning segment, excludes any optional materials
estimated minutes = sum of higher estimate times for each learning segment, includes optional materials in most cases

minimum days = estimated minutes / 55 minutes per class day, rounded up to the next class day

"estimated days" determined by max values in the LST while considering natural breaking points across classroom days; a more reasonable estimate of time needed to cover all materials in a unit, including many of the optional materials

cumulative days = number of instructional days accumulated through summation of "estimated days" across units

cumulative weeks = cumulative days / 5 days per week, rounded up

**Chemical Reactions unit adds +1 instructional day above values shown if Electrolysis is chosen instead of Burning Ethanol (likely regained during Photosynthesis)*

**Feedback Loops unit adds +4 instructional days; this unit is the most commonly moved or removed unit as it can stand alone*

A note about pacing, especially in the first year…

As a companion to the Curriculum Map and Year-at-a-Glance webpage, we provide here a crude pacing guide of sorts. Detailed information on the timing of each learning segment (lesson) within a model triangle (a unit) can be found on the Learning Segment Table for each model triangle.

The table above is merely a summary resource. It provides estimates for the number of 55-minute instructional days needed to complete each unit in the MBER-Bio curriculum for the alternate progression through the year, usually referred to as "Blue Loop First".

By its nature, this kind of pacing guide is optimistic. We understand that teachers need time for warm-ups, transitions, interruptions to instructional time (announcements, drills, assemblies, etc.), and perhaps most importantly summative assessments such as unit, mid-term and final examinations. None of these "extra" minutes are included in the calculations. Instead, we have intentionally left two weeks of administrative buffer on the front end of the schedule and the balance of the year--nearly 5 weeks of class time--to account for all of these additional commitments, requirements, and interruptions. That said, we have noticed that most teachers still struggle to make it through the entire sequence in their first year of implementation. In particular, the final units-- Population Variation, Speciation, and the return to Unity and Diversity-- are often truncated or dropped all together. These issues may be further compounded in schools that don't follow a traditional bell schedule (i.e. schools following a block, modified block, 4 x 4 schedule, etc.). We recommend teachers try to coherently wrap-up the year in some manner for students, with one possible solution involving truncation of portions of the Red Loop models such as Chemical Reactions where there are many optional materials that could be passed over in the first implementation. We hope then that teachers can still complete some of the end-of-year activities.

The most important idea to hold firmly as a new teacher is that no one can follow the pace of something handed to them. It will take time to make the materials your own (which is why we provide all of them in editable format) and to work with your students in developing a class where sensemaking is the norm. This kind of investment in shifting classroom culture takes time and practice. It is why we insist here that you schedule three weeks for "Setting the Stage" at the front of the year and why we hope you will take the time needed to encourage your students to engage with science in a new way, rather than focus your concern on exploring all of the content/units in their entirety. First-time MBER teachers who have rushed through content at the expense of reinforcing sensemaking norms with their students have consistently reported regret in having made such a choice. We recognize the unique pressure teachers face in teaching students with varied needs while conforming to the requirements of administration and standardized tests. Teachers sit at the interface of so many interests (parents, admin, school boards, and even colleagues and students). We understand this, and hope to connect you to a broader community of support, a community where teachers are learning to purposefully engage their students with science in a manner that is both meaningful to students and has long-lasting effects on their learning and their character. Thanks for taking this on.