EF Energy Flows at a Glance (approximately 3 traditional class days):

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| Seg | Model Move | Est Time  (min) | Overview | Resources | What did we figure out? |
| 1 | **P🡪Q** | 15 | **First we return to the ecosphere**, review what we’ve already figured out and then consider the role of sunlight in maintaining it. We come up with a driving question. | * EF Doodle sheet | We noticed that the energy in the ecosphere is somehow different from the matter. It has to be continuously supplied. We came up with a driving question about that. |
| 2 | **Q🡪M** | 20 | **Students generate an initial model to explain why the ecosphere needs a continuous supply of energy when it can recycle the matter inside of it.** Now that students have identified the phenomenon and come up with a question to explore, they will generate an initial model, based on prior knowledge, that will help them to explain why the ecosphere needs to be in the light. Students should already have model ideas for explaining much of this, but a key component that they may not have made a connection to is that energy is “lost” to the environment as heat in each chemical reaction. This is a quick, initial model discussion. They will go more in depth in subsequent learning segments. | * EF Doodle | We generated an initial model to explain our question about the phenomenon of energy and the ecosphere. |
| 3 | **M🡪P** | 50-70 | **Students further explore their models ideas in order to account for energy lost as heat to the environment through cellular respiration, and that some energy is stored in tissue.** Students participate in an activity that is an analogy for heat loss within an ecosystem. They then return to the driving question and revisit their model. | * EF Doodle | We further explored energy related ideas in food chains and participated in an activity that helped them to better understand what is meant by “heat loss” in an ecosystem. We finalized our model and answered the driving question. |
| 4 | **M🡪P** | 25-30 | **We explore an additional application of the model in order to solidify our ideas.** There is a common assertion that it is more environmentally friendly to is to “eat lower on the food chain”. Students will consider if this seems to be supported by our model or not. | * EF Doodle | We applied our model to consider human impacts. |