THE STANDARD

Synthetic Materials

Gather and make sense of information to describe that synthetic materials come from natural resources and impact society.

DCI
DISCIPLINARY CORE IDEA

PS1.A · Structure and Properties of Matter

> *Each pure substance has characteristic physical and chemical properties (for any bulk quantity under given conditions) that can be used to identify it.*

Synthetic materials don't appear out of nowhere. Every plastic bottle, every pill, every polyester shirt started as something natural: oil pumped from the ground, natural gas, plant compounds, ore. A chemical process rearranges those atoms into a new substance with different properties. The new substance can do something the original couldn't. **Strength, flexibility, waterproofness, healing.**

SEP
SCIENCE & ENGINEERING PRACTICE

Obtaining, Evaluating, and Communicating Information

> *Gather, read, and synthesize information from multiple appropriate sources and assess the credibility, accuracy, and possible bias of each publication and methods used, and describe how they are supported or not supported by evidence.*

Students aren't running a reaction in a beaker. They're reading. Articles, infographics, product labels, news pieces. The work is picking through information, deciding what's credible, and pulling out the through-line: natural resource in, chemical process happens, synthetic material out, society changes because of it. **Information literacy is the lab.**

CCC
CROSSCUTTING CONCEPT

Structure and Function

> *Structures can be designed to serve particular functions by taking into account properties of different materials, and how materials can be shaped and used.*

Synthetic materials are designed on purpose. Someone needed a fabric that wouldn't tear, so nylon got engineered. Someone needed a painkiller you could swallow, so aspirin got made. The properties of the material match the job it has to do. **Structure and function, but at the level of "why does this stuff exist at all?"**