

The STEM Fair

We will be researching connections between the Torah, mathematics, and science. Your job will be to choose a topic and explore the way in which it is connected to all three subjects. For this project, you must:

1. Follow all project deadlines and expectations
2. Complete a research board exploring all aspects of your topic
3. Present your research board at the STEM Fair

Below are some possible topic choices. You do not need to choose a topic from this list. You could choose your own topic completely, or you could choose a topic from the list but choose to make a different connection to the Torah. If you are choosing your own topic, make sure that you get it approved.

Possible topics and possible connections for 7th Grade Life Science Students

Science Topic	Torah Connection	Math Connection
Cellular respiration	Challah vs. Matzoh	Graphing how long it takes bread to rise
Genetic inheritance- Punnett squares	The Cohen כהן gene	Determining probabilities of certain genetic outcomes
Food chains/food webs	The laws of bentching	Calorie loss in a food chain
Osmosis	<i>Melicha (salting)</i>	Salt concentrations
Genetic inheritance- Pedigree charts	Family trees in the Torah כהן - לוי - ישראל	Graphing lifespans
Dichotomous keys (Identifying organisms)	Birds of the Torah	How prevalent are different species today?
Symbiosis (Mutualism, commensalism, parasitism)	The reasons and laws of כלאים	Calorie absorption with and without parasites
Chemical pollution and runoff	Baal Tashchis בל תשחית	Determining the amount of fertilizer used in the US annually
Cells and cell types	Blood in Tanach and <i>halacha</i>	Comparing the size of prokaryotic vs. eukaryotic cell types

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Possible topics and possible connections for 8th Grade Physical Science Students

Science Topic	Torah Connection	Math Connection
States of matter (Solid, liquid, gas)	Water, ice and snow in <i>halacha</i>	Measuring the ark
Mixtures (Homogeneous vs. Heterogeneous)	The rules of בורר (Borrer)	
Families of elements on the periodic table	Pesach in different communities worldwide	Population growth rates
A specific element on the periodic table (Gold, silver, copper, lead, or iron for example)	The use of that metal in the Torah – Different metals used in the / משכן בית המקדש	Graphing the melting points of various metals
The formation of heavy elements in stars	קידוש החודש / קידוש לבנה	Comparing the relative abundance of different elements
Chemical vs. physical changes	צרעת	Saturation points of different dyes
Acids and bases (pH)	The making of wine: כוס של ברכה	Graphing acidity of different wines
Newton's 3 laws of motion	שכר הליכה	Graphing mechanical advantage
Organic molecules (Proteins, lipids, carbohydrates, nucleic acids)	The reaction of yeast; when does it become חמץ	How many olives does it take to make a jar of olive oil?

Deadlines for the STEM Fair

May 4	Signed topic selection sheets must be handed in!
May 8	Preliminary research completed
	Rough drafts must be completed.
	All project display boards should be completed and brought to school.
	The fair will take place from _____ Remember to make appropriate arrangements for last-minute items you might need.

STEM FAIR PROJECT GUIDELINES

SCIENCE	TORAH	MATH
HYPOTHESIS	PASSAGE FROM THE TORAH	STATEMENT OF PURPOSE
MATERIALS AND METHODS EQUIPMENT, SUPPLIES, EXPERIMENTAL DESIGN, PROCEDURES, ETC.	EXPLANATION OF PASSAGE	GRAPHS, DATA, ETC
CONCLUSION	EXPLANATION OF CONNECTIONS TO SCIENCE AND MATH	CONCLUSION
		ACKNOWLEDGEMENTS