## **ITEST Activities and Topics**

COURSE	M/P	R/D	Status	TOPIC	ACTIVITY	MODEL/PROBE	INVESTIGATE	
Middle School								
Earth	М	RM	С	Minerals	Intro to Crystals	MW model	The effect of heating and cooling on crystals	
Science	М	RM	СТ	The Atmosphere	Global Warming	NetLogo model	The Greenhouse Effect	
	Р	R	СТ	Phase change	TEEMSS Water Cycle	Humidity and temp probes	Phase change at the atomic scale	
	Р	R	Р	Heat and temperature	Cooling curves	Tempeature probe	Temperature as heat is extracted during cooling	
	М	D	Р	Planetary systems	Model the planets	NetLogo model	Orbits around the sun	
	Р	D	Р	Weather	Measure weather	Temp, humidity, pressure	The physical effects of weather	
Physical	М	RM	СТ	Thermodynamics	Heat & Temperature	TELS Model and probe	Heating and cooling of liquids	
Science	М	RM	СТ	Phase change	Phase Change	MW model	Boiling in the kitchen	
	Р	R	СТ	Sound	TEEMSS Sound Unit	Built-in mic	The properties of sound	
	Р	R	СТ	Kinematics	TEEMSS Motion Unit	Motion detector	Graphs of various motions	
	М	DM	Р	Diffusion	Diffusion Models	MW model	Diffusion and osmosis	
	Р	D	Р	Energy conversions	Energy converstion	Various	The ways that various forms of energy are exchanged	
Life	Μ	RM	С	Macromolecules	Tree of Life	MW model	The function of different kinds of molecules	
Science	М	R	СТ	Genetics	Simple Inheritance	TELS Biologica model	Inheritance of dragons	
	Р	R	СТ	Plant respiration	Monitoring a plant	Humidity and light probes	The relationship between light and oxygen.	
	Р	R	Р	Human physiology	The Human Response	Temp and voltage probes	Breathing, ECG, and skin conductivity changes	
	М	DM	Р	Population Growth	Populations	NetLogo model	Various population and predation models	
	Р	D	СТ	Ecosystems	Design a greenhouse	Various sensors	A working greenhouse model	
High School								
Physics	М	R	СТ	Kinematics	Airbags	TELS Dynamica model	Collisions and the role of airbags	
	М	RM	СТ	Electricity	I, V, and R	TELS MW model	The atomic representation of current	
	Р	R	СТ	Dynamics	Air Cart	Motion detector	The acceleration of an air cart.	
	Р	RM	Р	Waves	Sound waves	Microphones	Wave properties of sound	
	М	DM	Р	Light-matter Interactions	Light and matter	MW model	Energy levels and light spectra	
	Р	D		Magnetism	Magnetic Fields	Hall effect sensor	Magnetic fields near magnetics and wires	
Chemistry	М	RM	СТ	Phase Change	Global Warming	TELS MW model	Reactions in the atmosphere	
	М	RM	СТ	<b>Chemical Reactions</b>	Stoichiometry	TELS MW model	Atomic connections to stoichiometry	
	Р	R	СТ	Acid-base Chemistry	Instrumented titration	pH probe	pH during a titration	
	Р	R		<b>Reaction Kinetics</b>	Manganate reduction	light probe	The effect of pH on MnO3 reduction	
	М	DM	СТ	Solutions	Model dissolving	MW model	A model of dissolving	
	Р	D	Р	Heats of Reaction	Heats of Reactions	Tempeature sensor	Temperature changes during reactions and phase change	
Biology	М	RM	СТ	Protein Form & Function	Protein structure	MW model	DNA sequences and the shape of protiens	
	М	R	СТ	<b>Population Genetics</b>	Adaptation	Biologica model	Natural selection and evolution	
	Р		Р	Homeostatis	Body Temperatuer	Fast response temp probe	Body temperature under various conditions	
	Р			Photosynthesis	Light and energy	pH and nitrate sensors	Chemical changes in photosynthesis	
	М	DM	Р	Population Growth	Populations	NetLogo model	Various population and predation models	
	Р	DM	Р	Ecosystems	Field measurements	Various sensors	Indicators of ecosystem health	
	M=Uses models P=Uses probes R=Activity will be ready to use M=easilty modified D=Activity will be "Do-it-yourself"							
	C=Completed. T=Tested in classrooms. P=partly developed.							