

5TH GRADE SCIENCE CHECKLIST

Goals 11 – 13

Illinois Learning Standards A – F Assessment Frameworks Performance Descriptors

SCIENTIFIC INQUIRY

- _____ Investigate a hypothesis
- _____ Conduct an investigation
- _____ Collect quantitative and qualitative data
- _____ Organize and display data
- _____ Analyze data to produce reasonable explanations
- _____ Communicate analysis and conclusions from investigations

TECHNOLOGY DESIGN

- _____ Identify a technological design. (how to squeeze toothpaste better, how to fly a better paper airplane)
- _____ Construct selected technological innovation (brainstorm options, sketch plans, identify criteria)
- _____ Test prototype (conduct trials, collect data, record observations)
- _____ Analyze data (compare, summarize data, interpret trends, evaluate data, determine sources of error)
- _____ Communicate design findings (select graphs and charts that report data, prepare oral and written data, generalize alternative design modifications)

LIVING THINGS

- _____ Compare the stages of simple life cycles and energy requirements **or** identify structures and their function in cells, tissues, organs, systems, and organisms (including humans)
- _____ Compare specific characteristics of offspring with their parents, **or** predict possible genetic
- _____ Describe genetic and environmental influences on the features of organisms **or** distinguish between inherited and acquired characteristics **or** explain how cells respond to genetic and environmental influences

- _____ Distinguish characteristics as learned or inherited or conduct simple surveys relating to learned behaviors of classmates and/or family members.
- _____ Classify organisms by their position in the food web
- _____ Group organisms according to their adaptive internal and/or external features
- _____ Contrast food webs within and among different biomes
- _____ Identify the biotic and abiotic factors associated with specific habitats
- _____ Make simple inferences to the closed systems of other planets
- _____ Identify survival characteristics of organisms
- _____ Explain abiotic or biotic factors which threaten health or survival of populations or species
- _____ Identify theories explaining mass extinctions

MATTER AND ENERGY

- _____ Demonstrate how mirrors, prisms, diffraction gratings and filters direct light patterns
- _____ Diagram how electricity can be produced from different sources of energy
- _____ Explain how electrical energy can be converted to light, heat, sound, and magnetic energy
- _____ Analyze examples of potential and kinetic energy
- _____ Compare insulation, conduction, convection, and radiation of heat
- _____ Separate components of mixtures by solubility, magnetic properties and densities
- _____ Analyze compound samples by qualitative methods
- _____ Graph the temperature variations associated with phase changes of simple substances
- _____ Categorize the properties of common elements into a graphic format

FORCE AND MOTION

- _____ Trace and measure motion of vehicles (cars, bikes, skates) in terms of position, direction, acceleration and speed in straight line, circular and inclined paths
- _____ Introduce harmonic and oscillating motion
- _____ Apply the concepts of natural frequency

- _____ Examine initial and final forces
- _____ Manipulate simple direct and inverse proportions to forces
- _____ Explain thrust, weight, lift and drag in flight
- _____ Analyze gears and gear ratios to do work
- _____ Demonstrate Newton's Laws of Motion in terms of space flight

EARTH SCIENCE

- _____ Model the effect of glaciations on a surface with applications to Illinois topography
- _____ Use satellite pictures, various topographic and thematic maps to indicate demographic, economic and weather patterns and /or their relationships to each other
- _____ Compare historic and current precipitation, barometric, and temperature records, and trends
- _____ Project future trends based on past and current records
- _____ Make inferences about cloud formations and weather conditions
- _____ Explain how historic economic and projected water supplies and demands locally, the nation, and the world.

SOLAR SYSTEMS

- _____ Generalize the composition and features of the inner and outer planets, asteroids, comets and different star types
- _____ Apply orbital concepts for seasonal positions of constellations
- _____ Apply apparent motions in the sky to use the sky as a clock, compass or calendar
- _____ Explain how the planets change their position in the sky relative to the stars over time using varying astronomic images
- _____ Identify the general applications of gravitational forces on Earth and in near and far space examples
- _____ Explain continuous free fall in space flight
- _____ Apply solar system cycles in trajectories in space flight and research

SCIENCE, SAFETY AND APPLICATION

- _____ Wear appropriate safety gear during inquiry or design investigations
- _____ Demonstrate how to use a fire extinguisher
- _____ Identify safety procedures
- _____ Recognize potential hazardous substances, poisonous plants
- _____ Role-play safety crisis situations
- _____ Explain why similar investigations should but may not produce similar results
- _____ Identify circumstances which distort how variables interact
- _____ Label accurate observations fully and carefully
- _____ Generate questions and strategies to test science concept using critical and creative thinking
- _____ Describe changes in tools, career, resource use and productivity over the centuries.