Concepts by Name															
Projects and Investigations	Full Speed Ahead	Right Face	Clap On, Clap Off	Follow the Guidelines	Obstacle Detection	Get in Gear	Wheels and Distance	Measured Turns	Frequency vs. Amplitude	Faster Line Tracking	Field of View	Gears and Speeds	Hello! My Name Is…	Full Stop	Ramp It Up
Math															
Pre-Algebra															
Means & Thresholds (Averages)			X	X	X		X			X		X			
Fractions		X				X	X	X				X			
Ratios & Proportions		X					X	X		X	X	X			
Units & Unit Conversion	X	X			X		X	X	X		X	X			
Pi							X	X				X			
Comparisons (<, >, =)			X	X	X	X			X	X		X			
Patterns									X		X				
Scaling and Scale Models											X				
Order of Operations							X	X				X			
Angles and degrees	X	X					X	X							X
Negative Numbers	X						X								

Projects and Investigations	Full Speed Ahead	Right Face	Clap On, Clap Off	Follow the Guidelines	Obstacle Detection	Get in Gear	Wheels and Distance	Measured Turns	Frequency vs. Amplitude	Faster Line Tracking	Field of View	Gears and Speeds	Hello! My Name Is…	Full Stop	Ramp It Up
Algebra and Equations															
Balancing Equations							X	X				X			
Recognizing Variables							X	X				X			
Solving for Variables							X	X				X			
Use Mathematical Models to Represent Quantitative Relationships							X	X				X			
Graphs and Data															
Plotting Data									X		X				
Recognizing Trends on a Plot									X		X				
Creating a Model											X				X
Use Models to Explain a Concept	X			X						X	X	X			X
Use data as proof to answer questions			X			X	X	X	X	X	X	X			X

Projects and Investigations	Full Speed Ahead	Right Face	Clap On, Clap Off	Follow the Guidelines	Obstacle Detection	Get in Gear	Wheels and Distance	Measured Turns	Frequency vs. Amplitude	Faster Line Tracking	Field of View	Gears and Speeds	Hello! My Name Is…	Full Stop	Ramp It Up
Geometry															
Linear Measurement					X		X	X		X	X	X			
Radius, Diameter and Circumference	X	X				X	X	X				X			
Location	X	X	X	X	X	X	X	X	X	X	X	X			X
Spatial Coordinates											X				
Understanding Relationships among 3-D objects	X	X		X	X	X	X	X		X	X	X			X
Data Analysis and Probability															
Collect Data							X	X	X	X	X	X	X		
Organize Data in a Chart or Graph									X		X	X	X		
Analyze Data			X				X	X	X	X	X	X	X		
Use Data and Evidence to Reach a Conclusion	X	X	X			X	X	X	X		X	X	X		
Problem Solving															
Apply strategies to solve problems	X	X	X	X	X	X				X		X			X
Reflect on problem solving	X	X	X	X	X	X	X	X	X	X		X	X	X	X

Projects and Investigations	Full Speed Ahead	Right Face	Clap On, Clap Off	Follow the Guidelines	Obstacle Detection	Get in Gear	Wheels and Distance	Measured Turns	Frequency vs. Amplitude	Faster Line Tracking	Field of View	Gears and Speeds	Hello! My Name Is…	Full Stop	Ramp It Up
Connections and Communication															
Recognize and Use Connections among Mathematical Ideas	X	X	X	X	X	X	X	X	X	X	X	X			
Apply mathematics in contexts outside of mathematics	X	X	X	X	X	X	X	X	X	X	X	X			X
Communicate mathematical thinking	X	X					X	X	X		X	X			
Use the language of mathematics to express ideas							X	X	X	X	X	X			

Concepts by Name															
Projects and Investigations	Full Speed Ahead	Right Face	Clap On, Clap Off	Follow the Guidelines	Obstacle Detection	Get in Gear	Wheels and Distance	Measured Turns	Frequency vs. Amplitude	Faster Line Tracking	Field of View	Gears and Speeds	Hello! My Name Is…	Full Stop	Ramp It Up
Science															
Physical Science															
Motion, position, direction, and speed of an object	X	X	X	X	X	X	X	X		X	X	X			X
Center of mass															X
Measurement (linear or w/ sensors)			X	X	X		X	X	X	X	X	X			
Energy (heat, light, electricity, mechanical motion, sound)	X	X	X	X	X	X	X	X	X	X	X	X			X
Properties of Sound and Ultrasonic Waves (wavelength, amplitude, tone)			X		X				X		X				
Properties of Light (reflectivity, color)				X						X					
Mass and Forces (torque, stall)						X						X			X
Gears and Ratios (mechanical advantage)						X	X					X			
Simple Machines						X						X			X

Projects and Investigations	Full Speed Ahead	Right Face	Clap On, Clap Off	Follow the Guidelines	Obstacle Detection	Get in Gear	Wheels and Distance	Measured Turns	Frequency vs. Amplitude	Faster Line Tracking	Field of View	Gears and Speeds	Hello! My Name Is…	Full Stop	Ramp It Up
Experimentation															
Measurement					X		X	X	X	X	X	X			
Units	X	X			X		X	X	X		X	X			
Hypotheses							X	X				X			
Taking Data and Verifying Data through Multiple Trials							X	X	X	X	X	X			
Data Analysis							X	X	X	X	X	X			
Error Calculations							X					X			
Organizing/Plotting Data									X		X	X			
Experimental Control, Conditions and Variables							X	X	X		X	X			

Concepts by Name															
Projects and Investigations	Full Speed Ahead	Right Face	Clap On, Clap Off	Follow the Guidelines	Obstacle Detection	Get in Gear	Wheels and Distance	Measured Turns	Frequency vs. Amplitude	Faster Line Tracking	Field of View	Gears and Speeds	Hello! My Name Is…	Full Stop	Ramp It Up
Technology															
Systems															
Sensors	X	X	X	X	X		X	X	X	X	X			X	
Mechanical Elements/ Simple Machines	X	X			X	X	X	X		X		X		X	X
Troubleshooting	X	X	X			X				X					X
Design Inquiry	X	X	X	X	X	X	X	X		X		X	X	X	X
Design Tradeoffs					X	X	X			X		X	X		X
Mechanical Advantage															
Elements working together (systems)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Transportation	X	X	X	X	X	X	X	X		X		X		X	X
Controls			X	X	X					X				X	

Projects and Investigations	Full Speed Ahead	Right Face	Clap On, Clap Off	Follow the Guidelines	Obstacle Detection	Get in Gear	Wheels and Distance	Measured Turns	Frequency vs. Amplitude	Faster Line Tracking	Field of View	Gears and Speeds	Hello! My Name Is…	Full Stop	Ramp It Up
Programming															
Programmatic logic Statements			X	X	X					X				X	
Loops			X	X						X					
Multiple methods produce the same behavior		X		X						X				X	
Debugging	X		X							X					
Viewing input (sensor) values			X	X	X				X	X	X				
Connections															
Technology in society	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Purpose of Technology	X			X			X	X					X		X
Technology as a tool	X	X	X	X	X	X						X	X		X
Using teamwork to produce technology	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Unintended benefits and consequences of technology			X	X	X	X				X		X	X	X	X

Concepts by Name															
Projects and Investigations	Full Speed Ahead	Right Face	Clap On, Clap Off	Follow the Guidelines	Obstacle Detection	Get in Gear	Wheels and Distance	Measured Turns	Frequency vs. Amplitude	Faster Line Tracking	Field of View	Gears and Speeds	Hello! My Name Is…	Full Stop	Ramp It Up
Communication															
Teamwork															
Working as a team to achieve a goal	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Brainstorming possible solutions	X	X	X	X	X	X	X			X			X	X	X
Composition															
Explanatory writing to address a question	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Summarizing past events	X	X	X	X	X	X	X	X	X	X	X	X			
Arguing support/dissent for a topic	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Comparison/ contrast of designs & choices				X	X	X	X			X		X			X
Describing Real world linkages			X	X	X	X		X	X			X	X	X	X
Organizing information					X	X	X	X	X	X	X	X			
Reasoning with evidence			X	X	X	X	X	X	X	X	X	X	X	X	X

Projects and Investigations	Full Speed Ahead	Right Face	Clap On, Clap Off	Follow the Guidelines	Obstacle Detection	Get in Gear	Wheels and Distance	Measured Turns	Frequency vs. Amplitude	Faster Line Tracking	Field of View	Gears and Speeds	Hello! My Name Is…	Full Stop	Ramp It Up
Human-Robot Interaction															
Describing robot impact on humans or its consequences			X								X			X	
Using robots to express emotion													X		
Understanding															
Finding key information in word problems			X	X			X	X			X	X			
Extrapolate on knowledge to make predictions	X	X	X	X		X		X							
Communicating comprehension of physical phenomena through words or pictures	X	X	X	X	X	X	X	X	X	X	X	X		X	X