New Hampshire NCLB Title II-D
Regular Funds for Round 9
Competitive Grants – February 2011

Step 2: Application Narrative for Classroom Mini-Grants Program

(Please be sure to complete Step 1 online at: www.nheon.org/oet/nclb)

District:	Enter district name here	Date:	
Project Manager:	Enter project manager name here		
Position Title:	Enter your position title here		
Mailing Address:	Enter school/district mailing address here		
Email Address:	Enter project manager's email address here		
Phone:	Enter project manager's phone number here		

BE SURE TO READ ALL OF THE FOLLOWING STATEMENTS.

ASSURANCES

I hereby certify that:

1. To the best of my knowledge, the information contained in this application is correct, and the school board of the district named above has authorized me as its representative to submit this application.
2. The District has submitted to the New Hampshire Department of Education (NHDOE) a General Assurances signature page for the current year.
3. The District has consulted with the appropriate non-public schools during the design and development of this Ed Tech project prior to all decisions that affect the opportunities of private school children to participate in the program.
4. All funding for this project will be obligated and reported no later than the quarterly report ending **6/30/2012** and expended and reported no later than quarterly report ending **9/30/2012.**
5. The grant funds expended will supplement, not supplant, funds from non-federal sources.
6. The District will keep records and provide information to the NHDOE as may be required for program evaluation, consistent with responsibilities under NCLB Title II-D as outlined within the Grant Application Guidance (e.g., annual tech survey, case study report).
7. The schools to be funded by this program are compliant with the Children's Internet Protection Act (CIPA) because the district employs a filtering mechanism for student access or because Ed Tech funds referenced in this application will NOT be used to purchase computers used to access the Internet or pay for direct costs associated with accessing the Internet.

Superintendents: When you submit your final grant application in the online grants management system, you will be certifying the above assurances.

Application Form for Classroom Tech Mini-Grant

Applicant: Mary Fougere, Gilmanton School District

Criteria	***Applicants:*** *Criteria used to review each grant application are listed in the left column. Please do not delete the criteria column. By using this right column to describe how your project proposes to meet the criteria, you can increase the likelihood that you won't leave out important information. There is no page limit, but please be as clear and concise as possible.*
Project Abstract (10 points) A clear and concise abstract (**100-150 word limit**) outlines the mini grant project and overall goals, along with the process for implementing it in the classroom.	
1. Describes the project, including grade level(s) and content area(s), indicates how this project fits into school/district curriculum, indicates process for implementation and assessment, as well as how it would advance the achievement of students.	It is the development of "spatial, linguistic, and kinesthetic intelligence" through immediate feedback that we believe will help foster better analytical thinkers. This is why we are asking for i-pads and wireless data logger stations. During experiments, especially during the Science Literacy Unit, data will be immediately, visually available. Seventh grade students will see results, generate questions, and change variables to manipulate results.
2. Abstract includes an essential question, connected to the state frameworks, which probes for deeper meaning and broader understanding of the framework content addressed by this project, fostering the development of higher order thinking and problem solving.	How can technology be incorporated into an ongoing Seventh Grade Science Literacy Unit in order to help students better develop analysis and critical thinking skills? Collecting data and critically thinking about the meaning of that data is a top priority for science education at the state and national levels. Ten of the twenty-one Targeted Assessments in Middle School Science deal with collecting and analyzing data. Also, as part of the NECAP Science exam, students are given an Inquiry Task in which data is collected and analyzed.
Project Description (50 points) Describes project in general terms and indicates whether it is a replicated project or an original project. Projects which can directly impact more than one classroom are preferred. If project is replicated, proposal describes the intended changes to the project idea and how they will improve the project in order to be appropriate for the situation. Includes specific goals and	

objectives that relate to the essential question, and explains how those goals will be achieved by the project. Include a rationale for any changes made to the original project. If your project is original, proposal describes how the project is appropriate for current situation. Includes specific goals and objectives that relate to the essential question, and explain how those goals will be achieved by the project.	
1. Proposal generally discusses how implementing this project will improve technology integration within classrooms and in the core content areas. Indicates the need for technology integration in school or district. Describes the determination of need for this project and includes one or more examples of data that support the rationale of need for the project, such as NECAP assessment or other data. This explains to the reviewer why the project is worthy of funding as it relates to student achievement.	The development of Scientific Literacy using data logging stations will allow Gilmanton students to become more independent, critical thinkers when analyzing data. The goal of using interactive technology to conduct experiments in order to better focus on representing and understanding results of investigations and evaluating scientific explanations is vital in moving our students toward the opportunity to compete in a twenty first century world. Sometimes in Science, as in other disciplines, it becomes critical to directly teach skills. Over the years, we have found this to be true for Gilmanton students to help them understand the steps of the Scientific Method and how to analyze data. All children living in Gilmanton spend two years with the same middle school academic teachers. The responsibility and pressure of making sure that all students master the expectations of the frameworks and GLEs are tremendous. Mastering the Science Process Skills, in order to succeed in all other areas of science in high school and beyond is vital. The authors of the current NH Science Frameworks know this, as the first set of framework standards listed in Science are the Science Process Skills. The introduction to our state Science Frameworks states: *Science is, above all, an inquiry activity that seeks answers to questions by collecting and analyzing data in an attempt to offer a rational explanation of naturally-occurring events.* Collecting data and critically thinking about the meaning of that data is a top priority. This is evidenced again in the 8th grade frameworks. Ten of the twenty-one Targeted Assessments (frameworks that can be tested on the NECAPS) deal with collecting and analyzing data. In addition, as part of the NECAP exam, students are given an Inquiry Task in which data is collected and analyzed.

	This emphasis on inquiry, data collection and analysis is also true in the national Science Core Frameworks that will be formally published and possibly adopted in the near future as articulated in the draft that was published for review this summer. The National document goes so far as to include an entire set of standards on Technology and Design. Several years ago, Gilmanton revamped the way that the Scientific Method was taught with our students, allowing the skills to be directly introduced and actively taught ahead of more content rich units. Our NECAP test scores steadily increased in the area of Inquiry over the past few years, however, Gilmanton students still fall below the state average in the Inquiry domain. The same can be said for the Math NECAP results: slightly below state averages in both Initial Understanding and Analysis and Interpretation. We found that by directly teaching a unit on the Scientific Method and Science Literacy ahead of content rich units, during content units themselves, students could focus more on the standards and skills more directly related to the content rather than getting 'bogged down' with having to learn the science process skills. They were comfortable proposing hypothesis, collecting data and presenting findings in our Forest Watch unit for example, and this allowed students to focus on climate impacts on our forest rather than focusing on the how-tos of the scientific process. As a result, our 8th grade Science NECAPs for 2010 showed students performing above the state average in the content areas of Life Science, Earth/Space Science and Physical Science. The one area that we still continue to struggle with is getting students to analyze and independently critically think about the data collected, what it means and how it can be applied. We are convinced that the cumbersomeness of recording data physically by hand, then entering it into Excel on laptops from the mobile cart (that needs to be scheduled days, sometimes weeks in advance), figuring out which graph to use, and setting up the tables and graphs, while all important skills in themselves to work on, often got in the way of moving from the collection of the data to immediately visualizing and understanding the effect of that data while fresh in the mind of our students. Sometimes, because of logistics, it might take a week from the time students performed the experiment to when they actually sat down to analyze the results. The connections were often weakened or gone completely. Pearl Solomon, a leader in the education community, in her

	book, *The Curriculum Bridge: From Standards to Actual Classroom Practice*, states *Interactive technology combines goal-satisfying student control with stimulation of spatial, linguistic, and kinesthetic intelligence. It provides the immediate feedback that verifies efficacy and helps create disequilibrium if the new perceptions do not agree with prior knowledge.* It is the development of this "spatial, linguistic, and kinesthetic intelligence" through immediate feedback that we believe will help foster better analytical thinkers. This is why we are asking for i-pads and wireless data logger stations. During experiments, especially when teaching the Science Literacy Unit, the data would be available visually and immediately. Students can see results, generate questions, and change variables to affect a change in the results. Liken this to asking a heterogeneously grouped class of students to complete long division by hand versus asking students to complete the task on a calculator. Some students never get past the math! Access to the laptop cart is dependent upon the needs of seven classrooms. Often it must be reserved weeks in advance. The portability of the data logging stations would allow us to use it in 6th, 7th, and 8th grade classrooms as well as taking the stations outside to conduct field investigations.
2. Project is focused on one or more content areas, with the proposal indicating which content area and associated standards are the main focus. Proposal indicates how the project will address ICT literacy skills without focusing solely on the acquisition of ICT literacy skills devoid of core content learning.	Seventh grade students are formally introduced to and expected to master the Scientific Method during an extensive Scientific Literacy Unit that is based on an inquiry and constructivist approach. Students move through a variety of learning experiences from identifying and writing different types of variables to designing and carrying out complete experimental investigations. The New Hampshire K-12 Science Literacy Curriculum Framework standards included in this unit are numerous. **Specific Science Process Skill Frameworks are many. The stems include:** • Designing scientific investigations • Conducting scientific investigations • Representing and understanding results of investigations • Information and media literacy • Communication skills • Critical thinking and systems thinking • Problem identification, formulation, and solution • Creativity and intellectual curiosity • Interpersonal and collaborative skills

	• Self direction • Accountability and adaptability However, students will focus on two specific *strands* of the Science Process Skills domain: • Scientific Inquiry and Critical Thinking Skills • Science Skills for Information, Communication and Media Literacy. The Physical Science Strand focus includes: • Energy, Change, Properties and Composition. The specific science frameworks will be included in the explanation of the phases of this project later in the proposal. **New Hampshire Digital and Media Literacy Skills include:** ○ Ed 306.42 (a) 2 …Use with Core Subjects. Become proficient in the use of 21st century tools to access, manage, integrate, evaluate, and create information within the context of the core subjects of: d. Science. ○ Ed. 306.42 (a) 3 … Cognitive Proficiency. Use 21st century tools to develop cognitive proficiency in : a. Literacy; b. Numeracy; c. Problem solving; e. Decision making; and f. Spatial / visual literacy. ○ Education Technology Grade 6-8 Performance Indicators: Prior to completion of Grade 8 students will: ○ 4. Use content-specific tools, software, and simulations (e.g., environmental probes, graphing calculators, exploratory environments, Web tools), to support learning and research. ○ 8. Select and use appropriate tools and technology resources to accomplish a variety of tasks and solve problems. **New Hampshire K–12 Mathematics Curriculum Framework standards include:** ○ M:F&A:7:2 Demonstrates conceptual understanding of linear relationships as a constant rate of change and distinguishes between constant and varying rates or describes how change in the value of one variable relates to change in the value of a second variable. ○ M;DSP:7:1 Interprets a given representation (circle graphs, scatter plots that represent discrete ○ linear relationships, or histograms) to analyze the data to formulate or justify conclusions, to make predictions, or to solve problems. ○ M:DSP:7:3 Organizes and displays data using tables, line

	graphs, scatter plots, and circle graphs to answer questions related to the data, to analyze the data to formulate or justify conclusions, to make predictions, or to solve problems.
3. Proposal describes in detail the project based learning unit(s) that will encompass the project, and project features support acquisition of digital and media literacy skills. Project based learning (or problem based learning) with a constructivist approach and essential questions are the heart of these projects. Team projects must show evidence that these pedagogies are clearly understood and applied.	The goal of this project is to allow students to become independent analytical and critical thinkers. In addition to becoming proficient in the use of spreadsheet and word processors, scientific technology such a probes and real-time graphing software is critical in helping move this unit from a task (collecting data) to an analytical exercise. The goal of using technology to conduct experiments in order to better focus on representing and understanding results of investigations and evaluating scientific explanations is vital in moving our students toward the opportunity to compete in a twenty first century world. The use of technology is critical in allowing this to happen. New Hampshire State Science Frameworks as well as the National Science Education Standards recognize this and make clear that technology is an integral part of Science. *Although these are science education standards, the relationship between science and technology is so close that any presentation of science without developing an understanding of technology would portray an inaccurate picture of science.* While so many Science Process Skills and Physical Science Frameworks are covered over the course of the unit, the area that students consistently have had the most difficulty with include *Representing and Understanding Results of Investigations* and *Evaluating Scientific Investigations*. The Unit is explained below: **Phase 1: The Introduction** The unit begins with students examining a series of scenarios about the fictional Simpsons characters and experiments that the Simpson characters attempted. Students learn to identify the different types of variables, then to identify the hypothesis and offer a scientific title for each scenario. Next we look at real life situations in which the Scientific Method was applied: How penicillin was discovered and how a cure for the disease BeriBeri was found, again identifying the different types of variables, hypothesis and title. **Science Process Skill Frameworks covered:**

DESIGNING SCIENTIFIC INVESTIGATIONS:

- SPS1:8:2.1 Identify the manipulated, responding and controlled variables in an experiment.
- S:SPS1:8:2.2 Design a controlled experiment, identifying and controlling the major variables.
- S:SPS1:8:2.3 Identify flaws or omissions in the design of simple experiments.

EVALUATING SCIENTIFIC EXPLANATIONS

- S:SPS1:8:5.1 Determine if the results of an experiment support or refute the scientific idea tested.
- S:SPS1:8:5.2 Evaluate whether the information and data collected allows an evaluation of the scientific idea under investigation.
- S:SPS1:8:5.3 Determine what additional information would be helpful in answering the scientific question.

Phase 2: The Modeling

Once comfortable with this level, the next step is to offer the opportunity in a structured environment to apply the above components to an experiment. Students are posed with the Question: Does the amount of sugar that yeast is given affect the amount of carbon dioxide produced? Students are guided through this experiment and the class conducts this experiment together in teams. Four bags are set up with equal amounts of yeast and varying amounts of sugar. Teams use thermometers to measure the temperatures of water, stopwatches to be sure 'proofing' is limited to exactly fifteen minutes, and a scale is used to weight the bags as soon as water is added to the yeast/sugar combination as well as after (conservation of mass in a closed system). Once the data is collected from the teams, instruction is given on how to set up a data table and graph in Excel. Here is where students get bogged down and life in the Science lab comes to a screeching halt. It seems no matter how many years students have been using Excel, we have to stop and re-teach. This may take several class periods depending on the heterogeneously grouped students.

Finally, we collectively analyze the data, collectively write up the conclusion and pull together a complete Lab Report based on Julia Cothran's model explained in her book, *Students and Research: Practical Strategies for Science Classrooms and Competitions.* Every step of this report is completed together.

Science Process Skill Frameworks covered:
MAKING OBSERVATIONS AND ASKING QUESTIONS

- S:SPS1:8:1.1 Use appropriate tools to accurately collect and record both qualitative and quantitative data gathered through observations (e.g., temperature probes, electronic balances, spring scales, microscopes, stop watches).
- S:SPS1:8:1.6 Rephrase questions so that they can be tested or investigated using scientific methodologies.
- S:SPS1:8:1.7 Ask questions about relationships between and among observable variables.

Phase 3: Guided Practice

Alka Seltzer is used as the prop to get the class to identify the question to guide the class' practice. Commonly, students identify *Does the temperature of the water affect the dissolving time of the Alka-Seltzer tablet?* Thermometers are used to record the temperature of the water. Students work together in teams with minimal assistance from the teacher to organize an experiment around this question and present their findings in a formal typed Lab Report. This Lab Report includes the use of Excel and Microsoft Word.

Science Process Skill Frameworks covered:

DESIGNING SCIENTIFIC INVESTIGATIONS:

SPS1:8:2.1 Identify the manipulated, responding and controlled variables in an experiment.

S:SPS1:8:2.2 Design a controlled experiment, identifying and controlling the major variables.

S:SPS1:8:2.3 Identify flaws or omissions in the design of simple experiments.

CONDUCTING SCIENTIFIC INVESTIGATIONS

S:SPS1:8:3.1 Use appropriate laboratory techniques to carry out student- or teacher-developed procedures or experiments.

S:SPS1:8:3.2 Use appropriate tools to gather data as part of an investigation (e.g., ruler, meter stick, thermometer, spring scale, graduated cylinder, calipers, balance, probes, microscopes).

S:SPS1:8:3.3 Follow the teacher's instructions in performing experiments, following all appropriate safety rules and procedures.

REPRESENTING AND UNDERSTANDING RESULTS OF INVESTIGATIONS

S:SPS1:8:4.1 Use appropriate tools (including computer hardware and software) to collect, organize, represent, analyze

	and explain data. S:SPS1:8:4.2 Identify sources of error in experiments. S:SPS1:8:4.3 Draw appropriate conclusions regarding the scientific question under investigation, based on the data collected. INFORMATION AND MEDIA LITERACY S:SPS4:8:1.1 Use a variety of information access tools to locate, gather, and organize potential sources of scientific information to answer questions. **Phase 4: Independent Practice** Students are given baking soda and vinegar. Working cooperatively in teams, they are asked to identify all of the variables that might affect the reaction between baking soda and vinegar, then to design an experiment. Teams are responsible for writing up all parts of the Scientific Investigation including the procedure and the data sheets which had been provided to students in the past experiments. One measurement that is required of students is to record the temperature of the reaction either before and after, or during the reaction. (This demonstrates an endothermic reaction and will set up the next phase of the unit.) **Science Process Skill Frameworks covered:** DESIGNING SCIENTIFIC INVESTIGATIONS: SPS1:8:2.1 Identify the manipulated, responding and controlled variables in an experiment. S:SPS1:8:2.2 Design a controlled experiment, identifying and controlling the major variables. S:SPS1:8:2.3 Identify flaws or omissions in the design of simple experiments. CONDUCTING SCIENTIFIC INVESTIGATIONS S:SPS1:8:3.1 Use appropriate laboratory techniques to carry out student- or teacher-developed procedures or experiments. S:SPS1:8:3.2 Use appropriate tools to gather data as part of an investigation (e.g., ruler, meter stick, thermometer, spring scale, graduated cylinder, calipers, balance, probes, microscopes). S:SPS1:8:3.3 Follow the teacher's instructions in performing experiments, following all appropriate safety rules and procedures. REPRESENTING AND UNDERSTANDING RESULTS OF INVESTIGATIONS S:SPS1:8:4.1 Use appropriate tools (including computer

	hardware and software) to collect, organize, represent, analyze and explain data.
	S:SPS1:8:4.2 Identify sources of error in experiments.
	S:SPS1:8:4.3 Draw appropriate conclusions regarding the scientific question under investigation, based on the data collected.
	
	INFORMATION AND MEDIA LITERACY
	S:SPS4:8:1.1 Use a variety of information access tools to locate, gather, and organize potential sources of scientific information to answer questions.
	S:SPS4:8:1.3 Use appropriate tools to analyze and synthesize information (e.g., diagrams, flow charts, frequency tables, bar graphs, line graphs, stem-and-leaf plots) to draw conclusions and implications based on investigations of an issue or question.
	
	COMMUNICATION SKILLS
	S:SPS4:8:2.1 Use a wide range of tools and a variety of oral, written, and graphic formats to share information and results from observations and investigations.
	
	CRITICAL THINKING AND SYSTEMS THINKING
	S:SPS4:8:3.1 Execute steps of scientific inquiry to engage in the problem-solving and decision making processes.
	
	This is where this unit has traditionally ended. This grant would allow us to include a crucial Phase 5: Design Application and Assimilation learning experience for the students.
	
	Phase 5: Design Application and Assimilation
	
	Science Process Skill Frameworks covered:
	In addition to the skills already listed in the earlier phases of this project:
	
	• CRITICAL THINKING AND SYSTEMS THINKING
	  ○ S:SPS4:8:3.1 Execute steps of scientific inquiry to engage in the problem-solving and decision making processes.
	  ○ S:SPS4:8:3.2 Apply new and unusual applications of existing knowledge to new and different situations.
	  ○ S:SPS4:8:3.3 Make sketches, graphs, and diagrams to explain ideas and to demonstrate the interconnections between systems.
	
	• PROBLEM IDENTIFICATION, FORMULATION, AND

SOLUTION

- S:SPS4:8:4.1 Formulate a scientific question about phenomena, a problem, or an issue and using a broad range of tools and techniques; and plan and conduct an inquiry to address the question.

- INTERPERSONAL AND COLLABORATIVE SKILLS
  - S:SPS4:8:6.1 Work in diverse pairs/teams to answer questions, solve problems and make decisions.
  - S:SPS4:8:6.3 Articulate understanding of content through personal interaction and sharing with peers.

- ACCOUNTABILITY AND ADAPTABILITY
  - S:SPS4:8:8.1 Develop and execute a plan to collect and record accurate and complete data from various sources to solve a problem or answer a question; and gather and critically analyze data from a variety of sources.

Physical Science Frameworks covered include:

- S:PS1:8:2.6 Represent or explain the relationship between or among energy, molecular motion, temperature, and states of matter. [PS1(5-**8**)SAE+MAS-**4**]
- S:PS2:8:1.2 Identify factors that affect reaction rates, such as temperature, concentration and surface area; and explain that dissolving substances in liquids often accelerates reaction rates.
- S:PS2:8:1.5 Given a real-world example, show that within a system, energy transforms from one form to another (i.e., chemical, heat, electrical, gravitational, light, sound, mechanical). [PS2(5-**8**)SAE+POC-**6**]
- S:PS2:8:2.2 Collect data or use data provided to infer or predict that the total amount of mass in a closed system stays the same, regardless of how substances interact (conservation of matter). [PS1(5-**8**)INQ+SAE-**3**]
- S:PS2:8:3.6 Use data to draw conclusions about how heat can be transferred (convection, conduction, radiation). [PS2(5-**8**)INQ+SAE+POC-**7**]

The great advantage that the I-pad with wireless probe station will allow us is to move students toward visualizing the chemical

	reaction taking place leading to new understandings. During this phase of experimentation, students will be asked to answer the questions: *How is energy involved in a chemical reaction? What factors will affect the rate of chemical reactions?* These are Essential Questions developed from the Physical Science frameworks listed above. Students will be asked to perform two reactions during this experiment; the first is to repeat the vinegar and baking soda trying to alter one variable to speed up the reaction. Temperature change during the reaction will be recorded by students using the wireless data logger and students will be able to track the temperature change on the i-pad screen. Students will have the ability to save this data run. The second activity will involve the combining of two polymers (Polymer A & Polymer B). These are liquids that, when combined together, foam up and solidify. By making a protective sleeve for the temperature probe, the probe can be safely inserted into the middle of the foam while it is being formed and the temperature during the reaction can be tracked and visualized on the i-pad using software called SPARKvue. Here students should clearly see in the two overlaid graphs displayed on the screen that during one reaction, the temperature drops and during the second reaction, the temperature increases. The hope is that this will lead to discussions about reaction rates and relationships between energy, temperature and states of matter. This is where higher level processing as discussed by Costa and Kallick in *Activating and Engaging Habits of Mind* will be applied. *A student's mind generally is engaged through some form of cognitive dissonance: a provocation or an inquiry. …. by raising a point of uncertainty or discrepancy in the content or by pressing students to raise such points as they try to understand what is being presented.* (Costa & Kallick) Students will employ many higher order thinking skills such as: comparing and contrasting, inferring, analyzing, synthesizing, speculating, and evaluating. The hope is that by using the probes, students can move quickly to this level of thinking rather than focusing on how to enter the data. In addition to using the probe stations with seventh and eighth graders during their Scientific Literacy Unit and eventually, Chemistry Units, the sixth grade team would like to be trained in possible applications of the use of the probe stations and software for use with the Force and Motion Unit covered in the sixth grade curriculum.

	Access to i-pads also affords a variety of other uses within disciplines and the school including tracking and recording real-time weather and constellations. The portability of them would allow us to take them outside to collect data in the field when conducting field studies. The possibilities are endless. We have included in the budget the intent to purchase additional applications for the i-pad.
4. Proposal identifies and explains at least three specific learning goals the team needs to address in its professional development activities and how the proposed professional development will address these.	➢ Trainings, conferences and other professional development will focus on three specific learning goals. 1. Goal #1: To learn how to use new equipment, i-Pads, data loggers, and probes to best meet the needs of all students and to enhance the teaching of science concepts and science skills. 2. Goal #2: To learn how to use available apps and resources to best meet the needs of all students and to enhance the teaching of science concepts and science skills. 3. Goal #3: To attend workshops where the teachers (team members) can expand their knowledge of how to best use the new equipment and software to create exemplary science projects that use project based learning with a constructivist approach and essential question. o Two teachers will attend three days of the Christa McAulliffe Technology Conference in the fall of 2011. o Two teachers will attend two days at the National Science Teachers Association 2011 Regional Conference in Hartford, CT Oct. 27-29. o Team members will attend PASCO training either online or at a conference in the use of the Data Loggers and Probes. o School technology integrationist will provide workshops for teachers in using the iPad. o Team members will attend PASCO online training in SPARKvue. o Gilmanton Technology Integrationist and the Science teacher will train teachers in the use of i-Pads and appropriate i-Pad apps.
5. Proposal indicates that support has been obtained from the superintendent AND the principal, preferably by attaching letters of support within the grant application	The district and the administration support the project and the training that the teachers will receive (see attached letters of support from superintendent and principal). The administration and the teachers understand that they are required to attend mini-grant meetings to support the project. Administrators

pages (not as separate files). Such support acknowledges that he/she has read the RFP, understands the requirements, and will allow the applying team to fulfill the requirements, if they are awarded the grant.	acknowledge and are supportive of the team's plans to present their project to the school's faculty and to educators at some other venue to be determined. They understand that there is a requirement for team members to participate in post-project evaluations. **Letter of Support from Principal:** THE GILMANTON SCHOOL 1386 NH Route 140 Gilmanton Iron Works, NH 03837 Phone: (603) 364-5681 Fax: (603) 364-5636 Web Page: www.gilmanton.k12.nh.us  **Carol N. Locke** **Emily Reese** **Debra Bergeron** **Principal** **Director of Student Services** **Assistant Principal** February 17, 2011 To Whom It May Concern: I support the efforts and the intent of the Classroom Technology Mini-Grant as written by two Gilmanton School staff members, Mary Fougere and Sharon Johnston. I have confidence that any equipment that they order will be used to its fullest extent. I also recognize that the planned curriculum as stated in the grant will benefit all the students by providing opportunities for differentiated instruction. In addition, I support all proposed professional development days through my own attendance and by providing substitute coverage for teachers. Thank you. Sincerely, Carol N. Locke Principal **Letter of Support from Superintendent:** *SCHOOL ADMINISTRATIVE UNIT*

	#79 Gilmanton School District P.O. Box 309 Gilmanton, NH 03237-0309 John A. Fauci Telephone: (603) 267-9097 Superintendent of Schools Telecopier: (603) 267-9498 February 17, 2011 To Whom It May Concern: I have seen and support the RFP for the Classroom Mini-Grant as written by two Gilmanton School teachers, Mary Fougere and Sharon Johnston. I understand the requirements of the grant and will allow the team to fulfill those requirements; including the release time necessary for staff development, presenting of the project within the District and at a regional or state venue, and attending the Mini-Grant celebration day. I am confident that the purchase of i-Pads and data probe sensors will benefit all students and staff in Gilmanton, in addition to benefiting the curriculum and students in seventh grade as is focused in the grant. Through professional development at school, other staff members will see how this technology works and come to understand the benefits of these stations and the i-pads for their own students. I support the intent of this grant proposal. Sincerely, John A. Fauci, Superintendent of Schools JAF/rfh
6. Proposal supports schools, teams, or districts that haven't participated in mini-grants previously or partners with such entities.	The last grant that Mary Fougere received from the state was a TLCF (Technology Literacy) grant in 2001. Amy Vaillancourt is a young teacher and has not been a recipient of mini-grant. Last year, Gilmanton School did receive some Title IID monies that were left over from the initial grant awards process. This money funded a laptop cart containing 24 laptops and 24 flip cameras primarily for use with the Social Studies, Spanish and Language Arts academic areas.

7. Proposal indicates partnerships which involve NH teacher preparation program faculty.	Gilmanton generally does not have student teachers willing to commit to working in our school. This is due to the distance we are from the college campuses.
8. Proposal indicates thoughtful inclusion of students with special needs and uses appropriate technology to assist those learners in order to promote the achievement of all students.	Students are heterogeneously grouped in all classes in Gilmanton School. Through differentiated instruction, small group, individual instruction and modifications when needed, our students find success in the regular education classroom. These effective teaching strategies will be employed during this project as well.
9. Proposal indicates plans for dissemination of the project to other schools and districts throughout the state, including presentations at 2 or more venues.	The team will share the project with the school staff and present the project at the school and another venue at the completion of the project. Administrators acknowledge and are supportive of the team's plans to present their project to school faculty and staff; to educators at another venue; and to participate in post-project evaluations. These venues may include a statewide workshop, posting a training video on teacher or school tube, or during an in-service to other staff members.
10. Proposal indicates specific plans for video production training as needed and an outline for the promotional video that describes the various stages of design and implementation of the project.	A training video will be produced as part of this grant. It will include how to use the data logging station as well as demonstrating appropriate questioning strategies that can be used to help foster higher level analytical thinking with student. Teachers have received training in using Flip Cameras to create videos. They feel comfortable with the cameras and want PD to advance their expertise with video production. The 8th grade team has used the Flip Cameras and Windows Movie Maker with students to create major projects Generations Unit in social studies and the "Familia" project in Spanish this school year.
Capacity for Success (35 points) Describes the capacity of each team member to achieve meaningful success at achieving the goals of the Tech Mini-Grant Program in the school or district. Clearly articulates the program and policies in place that will support success in terms of professional development, technology leadership, and how this program would meet specific achievement needs of the students.	
1. Proposal demonstrates capacity for success by providing strong evidence that school/district and the individual team members are willing and able to conduct the scope of work involved in	Lead teacher, Mary Fougere, was a recipient of a 2001 Technology Literacy Challenge Fund (TLCF) Subgrant in which she worked with a local watershed organization to develop maps and a middle school curriculum that is still being used today. She was twice the receiver of the Belknap County Environmental

implementing this project.	Teacher of the Year Award and received the prestigious Gary N. Lauten Award for her work with UNH's Forest Watch Program. Sixth Grade teacher, Amy Vaillancourt, is a young teacher who has been teaching 6th grade Science for three years. She has embraced teaching Science and is an important member of Gilmanton's Science Curriculum Committee. She has participated the past two years with the NHEET Team attending summer institutes and developing curriculum. Amy sees the value of the I-pad data logger stations for use with her students during her weather and force and motion units. Sharon Johnston is Gilmanton School's technology teacher as well as the Gilmanton School District Technology Integrationist. Last year she was successful in receiving monies for the Title IIA Redistribution Grant to fund the Generations Project and Familia Project for eighth graders. Sharon was the Gilmanton Middle School Social Studies teacher for 33 years, before becoming the Computer Technology Teacher in 2009. We have a history of successfully following through on the requirements of the grants that we have acquired in the past.
2. Proposal describes why participation in this effort is appropriate for district and the capacity the school or district has that will insure the success of the project.	Gilmanton students have successfully participated in project based science learning activities including the Forest Watch Program since 1992, watershed studies, and a Forensic Science Unit in which students use science to solve a 'crime'. The teachers in Gilmanton want to participate in this because we don't have technology like this and we recognize how useful this technology would be across the curriculum, not just science. The Technology Integrationist Specialist and the Network Administrator work closely with the middle school team to aid in the implementation of project based learning activities.
3. Proposal describes any structures, policies, and/or procedures already in place in school or district that support the project and the project-based learning philosophy.	In terms of staff, Gilmanton School has a Network Administrator, Technology Integrationist Specialist, Administration and teaching staff that recognize and support the importance of integrating technology into curriculum. In terms of hardware, we already have access to flip cameras, two mobile labs, a computer lab with 26 windows machines, and five Smartboards to help facilitate the success of this project and to demonstrate the importance Gilmanton places on technology.

4. Proposal discusses the abilities and expertise of the individual team members with respect to their ability to collaborate, organize, schedule, and deliver a successful project to their students.	Mary Fougere is a highly qualified middle school science teacher with twenty eight years of experience working in a middle school science classroom. Sharon Johnston is the current Technology Teacher for the K-8 Gilmanton School. She is a former Middle School Social Studies teacher with thirty five years of experience. Amy Vaillancourt is the current 6th grade teacher. She teaches both classes of 6th grade Science. Gilmanton School is fortunate to have grade level teams that are able to meet daily to continually collaborate in providing lessons that engage the students and promote higher level thinking and developing appropriate learning skills. The middle school team is no exception. In addition to having a daily team time, they have common prep time daily, and once a week they meet with specialists and paraprofessionals to discuss concerns of all middle school students. The technology integrationist works with the team to help them integrate technology into their lessons. In addition, students are provided with computer technology instruction twice a week. The Technology teacher develops her curriculum to assist and enhance the academic disciplines and to assist classroom teachers in accomplishing the goals of their curriculum.
5. Proposal indicates team member and district/administrative support with respect to: • implementing the project in classrooms, • supporting the professional development opportunities necessary to successfully participate in the Mini-Grant program, • participating in required mini-grant meetings, • producing the 3 minute documentary video for presentation, • preparing the lesson plans and materials necessary for sharing with other, • attending the Mini-Grant celebration day, • presenting the project within the district and at a regional or state venue, and • participating in post-project evaluations for program improvement.	The team members and administration support the implementing of the project in the classroom. They support the professional development opportunities that are necessary to successfully participate in the Mini-Grant program. The team and administration understand that we must participate in the required mini-grant meetings, must produce a three minute documentary video for presentation, prepare lesson plans and materials necessary for sharing with others, attend the Mini-Grant celebration day, present the project within the district and at a regional or state venue, and participate in post-project evaluations for program improvement. Implementing the project in the classroom: Mary Fougere Professional Development responsibilities: Sharon Johnston, Mary Fougere, Amy Vaillancourt Participation in the mini-grant meetings Producing the 3 minute documentary: Sharon Johnston & Mary Fougere Preparing the lessons & materials for sharing: Mary Fougere Attending mini-grant celebration: Administration, Community member, and at least two

	teachers Presenting the project within the district and at a regional or state venue: Mary Fougere & Sharon Johnston Participating in post-project evaluations: Mary Fougere & Sharon Johnston We understand that if our project is funded, that we will need to present the project at the annual Mini-Grant Celebration Event at Church Landing in Meredith, NH, as well as present at two other local or regional venues, such as the Christa McAuliffe Technology Conference or other similar event. We will produce a three minute documentary video for the presentation. We will prepare the lesson plans and materials necessary for sharing with others. We will share the project within our district as well as another venue. We will participate in post-project evaluations for program improvement.
6. Proposal discusses the Extent of Impact within the School – indicates the anticipated number of staff that will be directly and indirectly impacted by the project, as well as the number of students that will be directly and indirectly impacted, along with supporting explanations for each.	Having data logging stations will directly impact all 6th, 7th, and 8th grade students, approximately 140 students and their teaching staff. Although the primary focus of the stations is in the Science Classrooms, other academic classroom teachers in the Middle School will be trained in the use of the i-pads and offered the opportunity for integration in their subject matter. All teaching staff in Gilmanton will have the opportunity to attend a teacher training workshop.
7. Proposal discusses the Extent of Impact to Other Schools – Describes how the project will involve or include outreach to multiple schools, or multiple districts, in order to increase the impact of the project.	This project will be presented at one statewide workshop for teachers, possibly the NH Science Teacher Association Spring Conference. We also plan on posting a training video online at Teacher Tube and/or School Tube.
Budget (5 points) Budget contains a narrative and justification of expenses regarding equipment, supplies, travel, and professional development expenses appropriate to carry out the proposed project. The total for professional development is at least 25% of the total budget requested. Include $100 per team member for each teacher to attend the spring 2012 celebration event.	

Budget is formatted with the narrative in left column and total amounts in right column. Within the narrative, proposal describes a logical connection to district goals and shows how costs were calculated. Proposal includes $100 per teacher for attendance at celebration event.	**Budget Narrative** Maximum Funding requested is $10,000.

Budget (Describe as appropriate)	TOTAL
Hardware ▪ 10 i-Pads 16 GB Wifi @ $499.00 each = $4990.00 ▪ 9 Data Loggers @ $179 each = $1611 ▪ 9 Data Probes @ $98 each = $882	$7483.00
Software ▪ I-Tunes Apps (as needed) Many of the Science apps are free. Also an app that is purchased by the school can be synced with all 10 school owned i-Pads. We will be using the SPARKvue app for this project. There are a number of low cost apps that we are investigating and would like to try, such as but not limited to: Buzz Aldrin Portal to Science, iScience for iPad, The Elements: A visual Exploration, etc.	$17.00
Professional Development Activities (must be at least $2,500. ▪ 2 Teachers to attend 3 Days at the Christa McAuliffe 2011 Technology Conference. 3 Day Registration = $360.00 X 2 People = $720 ▪ 2 Teachers to attend 2 Days at the National Science Teachers Association Regional Conference in Hartford, CT October 27-29, 2011. Registration is $340 (nonmembers) X 2 = $680 ▪ 2 Nights in a hotel for two people @ $200 a night double occupancy = $400. ▪ 2 Days meal allowance @ $50 per day for 2 People = $200 ▪ Celebration Event at Church Landing in Meredith, NH for the three teachers and two other people (Superintendent, Principal, School Board Member or community leader. = $500 ($100 per team member.) Spring of 2012. ▪ PASCO On-Line Training = No Charge ▪ I-Pad Training at school with District Technology Integrationist = No Cost	$2500.00

SCHOOL ADMINISTRATIVE UNIT #79
Gilmanton School District
P.O. Box 309
Gilmanton, NH 03237-0309

John A. Fauci
Superintendent of Schools

Telephone: (603) 267-9097
Telecopier: (603) 267-9498

February 17, 2011

To Whom It May Concern:

I have seen and support the RFP for the Classroom Mini-Grant as written by two Gilmanton School teachers, Mary Fougere and Sharon Johnston. I understand the requirements of the grant and will allow the team to fulfill those requirements; including the release time necessary for staff development, presenting of the project within the District and at a regional or state venue, and attending the Mini-Grant celebration day.

I am confident that the purchase of i-Pads and data probe sensors will benefit all students and staff in Gilmanton, in addition to benefiting the curriculum and students in seventh grade as is focused in the grant. Through professional development at school, other staff members will see how this technology works and come to understand the benefits of these stations and the i-pads for their own students.

I support the intent of this grant proposal.

Sincerely,

John A. Fauci,
Superintendent of Schools

JAF/rfh

THE GILMANTON SCHOOL
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Web Page: www.gilmanton.k12.nh.us

Carol N. Locke
Principal

Emily Reese
Director of Student Services

Debra Bergeron
Assistant Principal

February 17, 2011

To Whom It May Concern:

I support the efforts and the intent of the Classroom Technology Mini-Grant as written by two Gilmanton School staff members, Mary Fougere and Sharon Johnston. I have confidence that any equipment that they order will be used to its fullest extent. I also recognize that the planned curriculum as stated in the grant will benefit all the students by providing opportunities for differentiated instruction. In addition, I support all proposed professional development days through my own attendance and by providing substitute coverage for teachers.

Thank you.

Sincerely,

Carol N. Locke
Principal