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Professional Learning Community Benefits

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EDCI 590 INDIVIDUAL RESEARCH

Spring 2009

Project Advisor

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Introduction:

The researcher's plan is to work in a professional learning community with the one other sixth grade science teacher. The researcher plans to create curriculum for the spring semester that will be a collaboration of both strengths of the teachers and enhance the curriculum beyond what one person could do on their own. The researcher decided to do this topic because in her teaching experience she has worked best when the researcher has worked closely with another teacher on the same subject. The researcher feels it is important to collaborate so that a teacher will do her best work.

The professional learning community expert is Richard Dufour. He has written many different books and journal articles on the topic. Dufour offers his knowledge on the subject to help administrators begin to develop a culture in their school that promotes community and sharing. The researcher plans on taking information from Dufour and using it to create a culture in her school where both teachers cooperate with each other to make their lesson more engaging and also make their own work load less by working collaboratively on the planning and implementation of the lessons. The professional learning communities purpose is to focus on student learning while also providing an avenue for teachers to work together and showcase their strengths to make the process of learning better for every student (Dufour, Dufour, Eaker, & Many, 2006).

Dufour encourages teachers to work together so that students do not continue to struggle and that more ideas are shared to make lessons and learning easier for both the students and the teachers (Dufour, 2006). The researchers plans to use her PLC to make learning easier and more enjoyable for the student and make planning the lesson easier for the teachers as well.

Literature Review:

What Is A Professional Learning Community?

Professional learning communities have a different look and purpose depending on the school and the team of teachers. Each school has to develop their own culture and professional learning community that works for the staff, administration, and students. However, in every professional learning community the underlying goal should be student learning. Teachers in a PLC should come together with a shared vision and develop an understanding that is not my students and your students but that it is our students (Huffman, 2003). It is important for all teachers to take a responsibility for all students learning in their particular grade level, subject, or school. When teachers are engaged in collaboration activity where the purpose is to come together for all students then real progress can be made (Huffman). Creating a school that has a cultural setting in which everyone learns, everyone plays an integral part and everyone participates in the responsibility for both the learning and the overall well being of everyone else. Having a shared vision and shared culture can make schools a place where each person has a stake in all student learning (Myers and Simpson, 2007). This can be one of the greatest challenges facing schools. Changing the culture of a school can be a difficult task, but it takes everyone working together and wanting to make the school and student learning a priority.

The very essence of a professional learning community should be a focus and commitment to the learning of each student (Dufour, Dufour, Eaker, & Many, 2006). In a school where professional learning communities are successful and productive have had a shift in their thinking and culture. Schools that utilize a professional learning community have to have a shift from most meetings focusing on how teachers teach to activities that focus on how students learn

(“Professional Learning Communities Hold Promise,” 2008). The culture at a school where student learning is a priority over other issues like behavior problems or teacher problems means that meetings can then focus on student achievement. Teachers should be meeting and using their limited time to discuss better ways to help students and keep conversations focused on student achievement and student learning (Rigsbee, 2008). It can be difficult for teachers to keep the focus of a meeting on student learning and not let the meeting get off task. It is very easy for teachers to become bogged down with all the other things that are important and require attention during their planning times. However, when the focus stays on student learning rather than teaching then teachers can collaborate on matters related to learning and they can hold themselves accountable to the kind of results that fuel continuous improvement of curriculum (Dufour, 2007). In a professional learning community student learning and achievement should drive what teachers do in their classrooms and what they do next so that they are maximizing the material that students can learn.

Professional learning communities give teachers an opportunity to collaborate and work towards a common goal. PLCs have to be dedicated to the idea that schools exist to ensure that all students learn essential knowledge and skills. It takes the work everyone to make a PLC successful. The professional learning community is one of continuous adult learning, strong collaboration, strong participation, and a shared consensus about school environment, culture and how to achieve it (Hard and Sommers, 2007)

The Benefits of a Professional Learning Community

Professional learning communities can have many great benefits for schools, teachers, and students. Professional learning communities can be one of the most effective ways to

improve student learning (Honawar, 2007). Professional learning communities have also been proven to have a greater achievement in the core course subjects. Students can have success in these core subjects because they have a better understanding of the basic skills and facts (“Professional Learning Communities Hold Promise,” 2008). When teachers are working collaboratively it creates consistency of base skills and knowledge so that all students have the level playing field (Wilhelm, 2006). Developing base skills and knowledge help students become more confident and are more likely to enjoy school. Schools that are using professional learning communities effectively have seen a decrease in student dropout, absenteeism rates, and an increase in achievement gaps (“Professional Learning Communities Hold Promise”). When students are engaged and given the skills to be successful it does help to keep them in school.

Professional learning communities can really focus on struggling students because strategies can be implemented as necessary when teachers are continuously looking at student learning. PLCs can provide systematic interventions that ensure students receive additional time and support for learning when they struggle (Dufour, 2006). Professional learning communities can also help those students who are above grade level on a certain skill. Teachers can work and collaborate to extend and enrich learning when students have already mastered the intended outcome (Dufour, Dufour, Eaker, & Many, 2006). This can really be effective when teachers are working in a professional learning community. Collaboration and time to reflect on student achievement can help to teachers make instant adjustments for students who are both struggling and who are ready for more information.

Not only are professional learning communities good for students, they are also good for teacher as well. When teachers are working alone and isolated with their own students and plans that don't get a chance to communicate with other teachers. Also, when teachers work

collaboratively together there becomes a higher commitment to the mission and value statements of the school (Hard and Sommers, 2006). When teachers feel that they are not alone it also is less overwhelming to think about all the things that teachers have to do. Teachers also experience a higher morale with having common goals and other people to share the load teachers can work under less stress and do better work (Dufour, Dufour, Eaker, & Many, 2006).

The Benefits for New and Veteran Teachers in a Professional Learning Community

According to the National Commission on Teaching and America's Future, teacher retention is becoming a wide spread problem for schools. Approximately one third of America's teachers leave teaching sometime during their first three years of teaching; and almost half may leave during the first five years (National Commission, 2003). Getting new teachers to not only stay in the profession but also become a part of the school culture is something that schools need to accomplish. A professional learning community can achieve just that.

Beginning a new career, especially one that is demanding as teacher, can be a very daunting task. Many teachers feel overwhelmed during their first year with all of the duties that a teacher has (Udelhofen, 2005). If new teachers knew they would be coming into a school where teachers share what works and what doesn't and that they wouldn't be alone perhaps they would be less anxious. However, this type of collaboration does not happen over night. School leaders need to be in charge of developing those relationships and encourage the lines of communication to be open. This collaboration would lead to improvement in teacher satisfaction and hopefully in the end teacher retention (McClure, 2008).

Professional learning communities can give new teachers a place to learn from the more experienced teacher. Novice teachers could have a greater impact on student achievement early

if their anxiety is lessened by sharing the workload with veteran teachers (Udelhofen, 2005). When veteran teachers share responsibilities of lesson planning, making copies, modifications for special education, etc, it makes new teachers not feel so alone (McClure, 2008). When there isn't a specific culture setup in the school where teachers feel comfortable enough to share the workload, then it doesn't happen. A PLC creates an environment where teachers can come together and share their ideas for lessons and strategies that might help struggling students (Mednick, 2004). Teachers can feel less threatened and become open about their achievements and their setbacks. Teachers should not feel alone and if a school's culture is one of sharing then teachers won't feel alone and everyone would benefit (Mednick, 2004).

A school culture where teachers can openly discuss student work, curriculum, and strategies that are working is important for all teachers, not only new teachers (Mednick, 2004). Professional learning communities can be a place that is conducive for veteran teachers to make professional growth and other improvements to their own teaching. Veteran teachers may not be as knowledgeable in new strategies such as differentiation. Veteran teachers can share their knowledge of the curriculum and new teachers can share their knowledge of new and research based strategies (McClure, 2008).

It is also very important for veteran teachers to share their knowledge to new teachers before they leave the profession. Many veteran teachers retire from the profession and take all of their years of knowledge and experience with them (Udelhofen, 2005). The teaching profession needs to become a profession where people feel comfortable enough to share what works for students and to make sure new teachers know what already works. There is no need to reinvent the wheel if teachers could share what is working for them before they leave (McClure, 2008).

Teacher retention is a problem that most schools are facing all over the United States. Professional learning communities could be a way for new teachers to get support from veteran teachers and veteran teachers would have a chance to share all of the hard work they have been doing as well.

Designing the Curriculum Around Teacher's Strengths

Professional learning communities can be a great way to develop the curriculum. It is especially good for giving teachers a chance to share their strengths with other teachers and using their strengths to make the lessons the best they can be for students. Schools must recognize and utilize the knowledge talents and resources on every member of the school community (Dufour & Eaker, 1998). It is imperative that schools develop a culture where the strengths of teachers are used to their fullest extent. Teachers' strengths can easily foster a curriculum that will increase student achievement. Professional learning communities are a way to establish a guaranteed and practical curriculum to ensure all students have access to the same knowledge and skills (Dufour, 2007).

Teachers need time to work together and a given a chance to share ideas and expertise. It needs to be the culture of the school where teachers not only feel comfortable sharing their ideas but they do it on a regular basis and want all students to succeed not just their students. A PLC is a way to foster an atmosphere in which teaching could learn from one another and share their colleagues' expertise so that all the students would benefit (Honawar, 2007).

Every teacher has something that they do well and other things that they do not do so well. In a professional learning community it give teachers a chance to develop weaker skills and share their strengths. Teachers whose students were weak in one area but did well in another

could use their PLC to develop strategies with each other to compensate for those weaker areas and share their ideas for the strength areas (Dufour, 2003). It is important to be aware of one's own areas of strength and weakness and then work on those areas. Failing teachers can call on colleagues to help them in an area of concern and use the talents on the entire team (Dufour, 2004).

Not only can strengths and weaknesses be addressed in a professional learning community, but they can also be a great way for teachers to share ideas and beliefs about curriculum and student achievement. Teachers can collaborate and share their pedagogical beliefs and strategies to ensure that curriculum is focused on student learning (Roberts & Pruitt, 2003). Teachers drive their thoughts and feelings on curriculum by analyzing data and a professional learning community is a way for that data analysis to take place. Professional learning communities can push teachers to develop curriculum that is intended to increase student achievement and teachers then can implement that curriculum (Dufour, 2004).

Structuring the curriculum as the year goes along is a way to ensure that student achievement is the motivating factor to steer the curriculum. Using data to drive curriculum and the strengths of teachers it can make students very successful. Using data, teachers can see where students struggled and re-structure the curriculum. Teachers can give students who struggled in their class to the teacher whose students did well on a particular topic for some remediation. Without a professional learning community this type of communication would not take place and students could continue to struggle (Dufour). Not only can PLCs be used to help remediate students but also they can be a place to discuss options for enriching students as well. Staff members can communicate to design and deliver a curriculum that goes beyond low-level skills and respond to the need to higher levels of learning for all students (Dufour & Eaker 1998).

Methodology:

The researcher worked in a professional learning community for four months. We worked together to come up with lesson ideas and experiments that would enhance the content and help students connect better with that content. We worked twice a week for an hour at a time discussing the students' achievement and struggles. We then developed lesson plans together that used both of our strengths to make the lessons better. The researcher then had the assistant principal and veteran teacher evaluate the lesson using a questionnaire. Finally, the researcher surveyed the staff to get information about PLCs and their effectiveness for veteran teachers versus novice teachers.

Research Question #1: Will a professional learning community create a better curriculum by using each of the teachers' strengths?

Step 1:

The researcher met twice a week with my professional learning community. This included me and the other sixth grade science teacher. We initially discussed our strengths and weaknesses for teaching. Being that the researcher has been teaching sixth grade science for a few years, the researcher felt her strength was the knowledge of the curriculum and developing notes and worksheets to convey the curriculum. My partner's strengths were developing hands-on activities and using technology. We decided that we could work on several lessons a unit to combine both of our strengths to make the lesson better.

Step 2:

We worked on three to five lessons a unit for three units. The researcher developed the contents of the lesson and the notes. My partner enhanced the lesson with a hands-on activity or technology.

Step 3:

The researcher then developed a questionnaire to be used to evaluate the effectiveness of the PLC. The researcher had her assistant principal and a veteran teacher observe the lessons that were planned during the PLC, specifically focusing on our strengths. The observers were given a copy of the lesson plan and a copy of the questionnaire. The questionnaire included questions such as, did you see collaboration of the two strengths, pedagogy and hands-on in the lesson?

Also,

Research Question #2: Who benefits more from a PLC, a novice teacher or a veteran teacher?

Step 4:

The researcher also created a survey for the ten sixth and ten seventh grade teachers at my school. The researcher surveyed their opinions about being in a PLC. The researcher also surveyed who they thought a PLC benefited more, a new teacher or a veteran teacher. The researcher then tallied the results and entered them into a graph to illustrate the results. The researcher analyzed the results by comparing how long a person taught for and compared that to how beneficial they thought a PLC was. The researcher wanted to see if a PLC is something that everyone finds useful, or if one particular group benefits more.

Analysis of Results:

Research Question 1: Will a professional learning community create a better curriculum by using each of the teachers' strengths?

To determine if a PLC can enhance the curriculum using teachers' strengths, the researcher worked closely with her professional learning community to develop some of the lessons over 3 different science units. The lessons were designed to focus on the strengths of the researcher and the other member of the PLC. The researcher's strength was conveying content and pedagogy of the curriculum and the strengths of the other member were hands-on activities and technology. Together lessons were planned that combined both strengths and then the assistant principal and a lead seventh grade teacher observed the lessons.

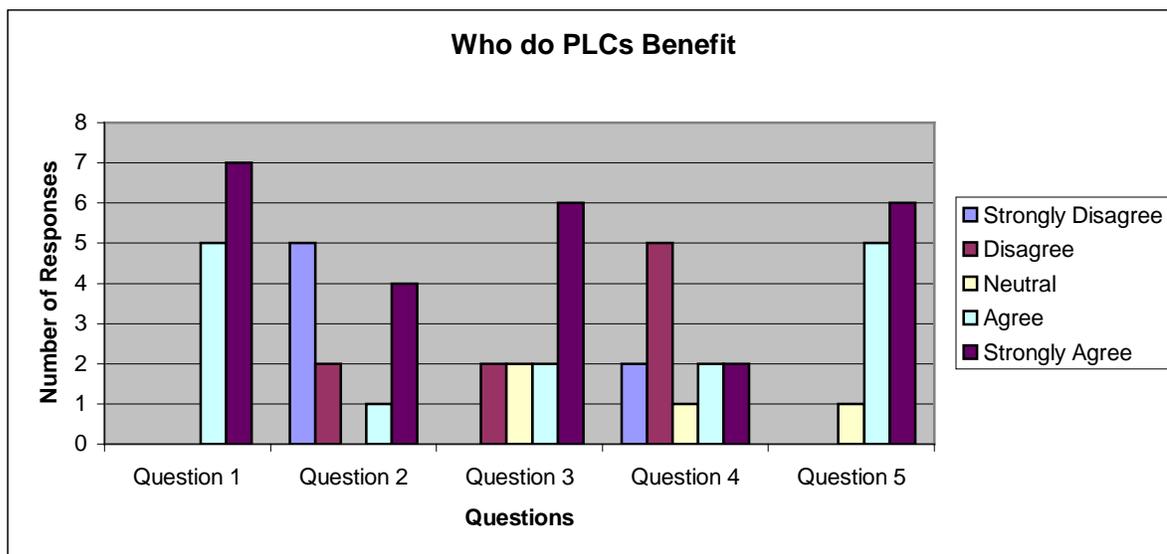
The observers used a questionnaire to ensure their observation focused on the use of the professional learning community. The observers were also given a copy of the lesson, which showed where each teacher contributed to the lesson. The observers answered a few questions about the lessons and were also able to make comments about the lesson as well. The researcher then read through the answers to the questions and the comments made to determine if the lessons were better with collaboration or not.

The first question asked was if the observer saw both strengths being employed in the lesson. In every lesson observed, both individuals agreed that the strengths were being used in the lesson. They commented that both teachers contributed to the lesson and each of the strengths was utilized efficiently in the lesson. The second question asked the observer if they thought that the strengths used in the lesson enhance the lesson. Both observers agreed that the lessons were better when both the content was taught to the students as well as a hands-on activity to reinforce the information. Each observer commented the lesson would not have made as much of an impact on the students if both parts had been present. The third question asked the

observers if they could tell that the lesson was planned together. Both observers agreed that they could not tell that the lesson was planned together. One of the observers commented that both teachers were comfortable with all parts of the lesson, even if it was not their own strength. The observers thought that the lesson went very smooth and the fluidness of the lesson showed the time that the PLC worked together. The fourth question asked to the observers was if the students were engaged during the lesson due to the hands-on activities, the technology used, and display of the other content. Again both observers agreed that in all of the lessons that the students were engaged and they felt it was due to the combination of the hands-on and the content. The fifth and final question asked to the observers was if they thought a PLC improved the lesson. The observers agreed once again that the lessons were better because of both teachers' strengths. They commented the lesson would have been acceptable had the teachers planned alone, but together they made a lesson that intrigued the students and had them more engaged.

Overall, the observers believed that the lessons that were planned together did enhance the curriculum being taught. They also commented that the best part of the collaborated lesson was that it didn't seem as though the lesson was planned together. They thought that the lesson was more effective because both teachers were comfortable and successful teaching out of their comfort zone. The professional learning community is an effective way to have teachers not only collaborate, but also to share their strengths with each other to make the lessons the best that they can be. Students are the ones who benefit the most from teachers using a professional learning community to make the curriculum better.

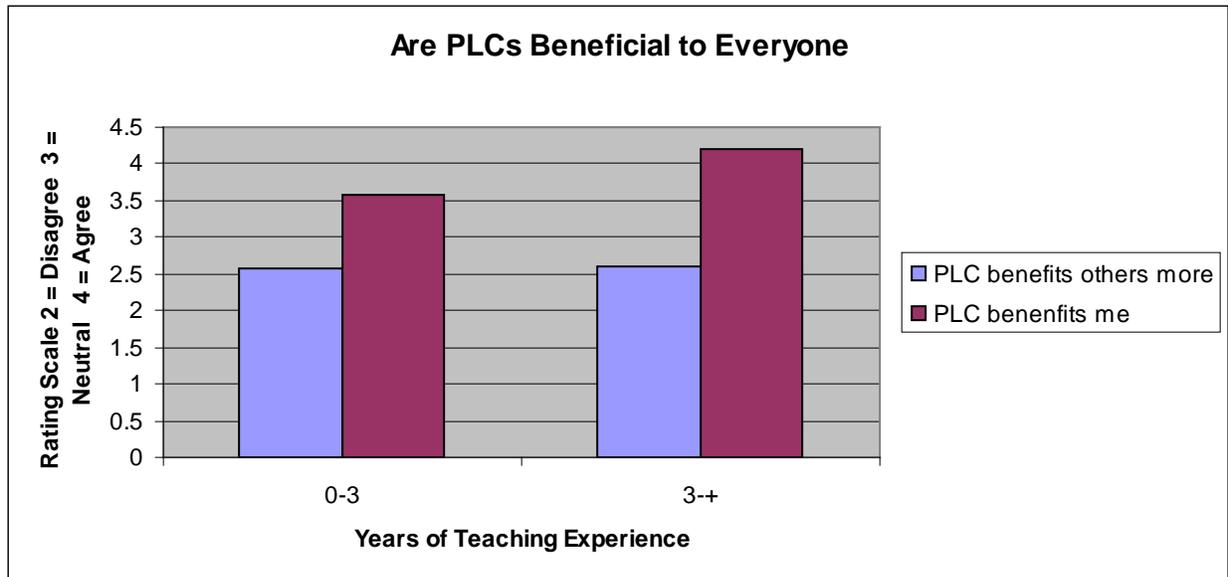
Research Question #2: Who benefits more from a PLC, a novice teacher or a veteran teacher?



The researcher surveyed 12 teachers at a middle school who all work in a professional learning community. The purpose of the survey was to discover if PLCs were more beneficial for veteran teachers or novice teachers. The aggregated survey results are below. The first question asked if the surveyor was in a PLC. According to the results everyone agree or strongly agree that they were apart of a PLC. In question two, the surveyors were asked how long they have been teaching in their current subject. The results showed that seven people considered themselves a novice teacher in their current subject and five teachers considered themselves veteran teachers in their subject. Question three asked the surveyors if they felt that their PLC was beneficial for them. Eight people agree or strongly agree that their PLC was beneficial, and four people felt neutral or disagreed that their PLC was beneficial. In question four the surveyors were asked if the PLC was more beneficial for other people in the PLC than themselves. Seven people responded that they disagreed with the statement and four people agreed or strongly agreed with the statement. Finally, question five asked the surveyors if they

would meet with their PLC even if they were not asked to meet by the administration.

Overwhelming, 11 out of the 12 people agreed or strongly agreed with the statement.



The graph above breaks down the overall results to focus in on the comparison between novice teachers and veteran teachers. For novice teachers, the results were that on average they felt their PLC was not more beneficial for others than themselves. Novice teachers also agreed that their PLC was beneficial to them. Veteran teachers had similar results. Veteran teachers also disagreed that their PLC was more beneficial for others than for themselves. Finally, veteran teachers also agreed that their PLC was beneficial. Based on the results of the survey, the researcher determined that PLCs are beneficial to both novice teachers and veteran teachers.

Conclusions and Recommendations:

According to scholarly journals, professional learning communities are a way for schools to focus teachers' efforts to maximize student achievement. When given the opportunity teachers can use their talents and strength to develop a curriculum that will enhance student learning and make student achievement the focus of their efforts. For professional learning communities to be successful schools have to have a shift in their culture. When teachers have an opportunity to work closely with each other as a professional then student achievement and real progress can be made in any school. Keeping teachers in the profession is a problem and a school culture based on sharing and collaboration could help new teachers adapt and flourish in the profession. Professional learning communities can make the most of new and veteran teachers' talents and strengths and use them to maximize student achievement.

After completing the analysis, the researcher has determined some conclusions that can be made about professional learning communities. First, the researcher believes that professional learning communities can make a large impact on the success of a lesson. In the old adage, "two heads are better than one," holds true in a PLC. Teachers can collaborate and come up with lessons that will be more engaging and more in-depth than those lessons created on their own. Creating a setting where all teachers' ideas and strengths are used can foster lessons that not only enhance the lesson, but also engage all students. When teachers are working alone it is more difficult come up with new ideas and also change ideas that may not be working. Having someone to discuss successes as well as failures is essential, and gives teachers an opportunity to make the best lessons they can.

Secondly, using the strengths of each teacher is an important part of a successful professional learning community. Each teacher has some things that they exceptional at and

other things that they never try in the classroom because they are not good at it. However, when teachers have a colleague working with them to show new techniques or new technologies they may not know it can really enhance their typical lesson. The researcher found it made her more comfortable trying something new when she had another person to work with on ideas that she was not as strong as other strategies. Also, using teachers' strengths will also help teachers to feel more of a part of the group. If each person is contributing his or her ideas then everyone will take ownership and feel included. Using each teacher's strengths can make a lesson go from good to great.

Finally, professional learning communities are not only good for novice teachers, but it is also good for veteran teachers. At first thought, people may think that new teachers would benefit more from working with veteran teachers who have had more experience than them. However, according to the research, veteran teachers feel professional learning communities benefit them just as much as it benefits the other people. It seems as though everyone can benefit from the collaboration and sharing of ideas. Novice teachers may not be able to bring as much as other teachers, but they can still have ideas and strengths that veteran teachers do not have, like technology. A professional learning community is a great forum to get new teachers and veteran teachers talking and sharing ideas, so that no one is left on their own.

Recommendations:

- Create a culture in the school where people feel comfortable sharing ideas.
- Encourage teachers to use each others' strengths when creating a lesson
- Both novice and veteran teachers benefit from PLCs and should be encourage to be a part of one.
- Professional learning communities are a great way to foster collaboration and a feeling of community with the staff.
- Professional learning communities help with teacher retention

These recommendations would help a school encourage teachers to begin to work together and build a community on collaboration and communication. It is important for teachers to share their ideas and their strengths with each other, so that lessons can be the best that they can be. In turn, students will become more engaged and on task when the lessons are engaging and interesting.

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Appendices:Appendix A – Lesson Questionnaire:

Lesson Topic: _____

Date: _____

Question 1: This lesson was planned using both teaching strengths – pedagogy/content knowledge and hands-on/technology. Did you see both strengths in this lesson?

Yes

No

Comments:

Question 2: In your opinion, do you think that using both people's strengths enhanced the lesson?

Yes

No

Comment:

Question 3: Can you tell this lesson was planned together?

Yes

No

Comments:

Question 4: Are students engaged because of the hands-on and other content presented?

Yes

No

Comments:

Question 5: Did a PLC improve this lesson?

Yes

No

Comments:

Appendix B - Survey:

PLC Survey for Sixth and Seventh Grade Teachers at a Middle School in Stafford County

Rate each statement.

1 = Strongly Disagree 2 = Disagree 3 = Neutral 4 = Agree 5 = Strongly Agree

1. I am apart of a PLC.

1 2 3 4 5

2. I have been teaching in my current subject for three or more years.

1 2 3 4 5

3. I feel that my PLC is beneficial.

1 2 3 4 5

4. I feel that my PLC is more beneficial for other people than for me.

1 2 3 4 5

5. I would work with other teachers who share my curriculum even if I wasn't asked to meet.

1 2 3 4 5

Appendix C: Lessons:**Day 5 – January 13, 2009**

Concept / Topic to Teach: Weather

Standards Addressed: Standard 6.3

General Goal(s): Students will investigate and understand the role of solar energy in driving most natural processes within the atmosphere, the hydrosphere, and on the Earth's surface. Key concepts include: the Earth's energy budget, the role of radiation, conduction, and convection, the motion of atmosphere and the oceans, cloud formation, and the role of heat energy in weather related phenomena.

Specific Objectives: Students comprehend the differences between radiation, conduction, and convection.

Required Materials: Demo materials, vocabulary definitions, Heat transfer worksheet

Warm-up: Define the Greenhouse Effect.

Wrap up from yesterday: Share letters and comics if students want to

Anticipatory Set (Lead-In): None

Step-By-Step Procedures:

1. Students will see a demo on the different types of heat transfers.
2. Students will take notes on the definitions of each type of heat transfer
3. Students will work on a worksheet about each heat transfer type.

Closure (Reflect Anticipatory Set): None

Assessment Based On Objectives: Worksheet

DI: Demonstration

Homework: Study for quiz on Friday

Day 9 – January 21, 2009

Concept / Topic to Teach: Weather

Standards Addressed: Standard 6.3

General Goal(s): Students will investigate and understand the role of solar energy in driving most natural processes within the atmosphere, the hydrosphere, and on the Earth's surface. Key concepts include: the Earth's energy budget, the role of radiation, conduction, and convection, the motion of atmosphere and the oceans, cloud formation, and the role of heat energy in weather related phenomena.

Specific Objectives: Students will understand the development of a cloud

Required Materials: cloud demo materials, cloud notes

Warm-up: What is a cloud made of?

Wrap up from yesterday: Review quiz

Anticipatory Set (Lead-In): None

Step-By-Step Procedures:

1. Students will go over the quiz from Friday
2. Students will watch and participate in cloud demonstration
3. Students will take notes on cloud formations

Closure (Reflect Anticipatory Set): None

Assessment Based On Objectives: Informally throughout lesson

DI: None

Homework: None

Day 13 – January 30, 2009

Concept / Topic to Teach: Weather

Standards Addressed: Standard 6.3

General Goal(s): Students will investigate and understand the role of solar energy in driving most natural processes within the atmosphere, the hydrosphere, and on the Earth's surface. Key concepts include: the Earth's energy budget, the role of radiation, conduction, and convection, the motion of atmosphere and the oceans, cloud formation, and the role of heat energy in weather related phenomena.

Specific Objectives: Students will investigate process for tornadoes

Required Materials: tornado demo materials, tornado video, tornado notes

Warm-up: How does lightning form?

Wrap up from yesterday: None

Anticipatory Set (Lead-In): None

Step-By-Step Procedures:

1. Students will watch demo of tornado
2. Students will watch tornado video
3. Students will take notes on tornadoes

Closure (Reflect Anticipatory Set): None

Assessment Based On Objectives: None

DI: None

Homework: None

Day 16 – February 5, 2009

Concept / Topic to Teach: Weather

Standards Addressed: Standard 6.3

General Goal(s): Students will investigate and understand the role of solar energy in driving most natural processes within the atmosphere, the hydrosphere, and on the Earth's surface. Key concepts include: the Earth's energy budget, the role of radiation, conduction, and convection, the motion of atmosphere and the oceans, cloud formation, and the role of heat energy in weather related phenomena.

Specific Objectives: Students will understand the formation of hurricanes

Required Materials: Smart board activity, tracking map

Warm-up: What are three characteristics of an F3 tornado?

Wrap up from yesterday: None

Anticipatory Set (Lead-In): None

Step-By-Step Procedures:

1. Students will work do a lab on tracking a hurricane
2. Using textbook 92-93I and smartboard to track the hurricane

Closure (Reflect Anticipatory Set): None

Assessment Based On Objectives: Informally during the tracking activity

DI: None

Homework: Study for unit test on Tuesday

Day 2 – February 11, 2009

Concept / Topic to Teach: Water

Standards Addressed: Standard 6.5

General Goal(s): Students will investigate and understand the unique properties and characteristics of water and its roles in the natural and human-made environment. Concepts include water as the universal solvent, the properties of water in all three states, the action of water in physical and chemical weathering, the ability of large bodies of water to store heat and moderate climate, the origin and occurrence of water on Earth, the importance of water and the importance of protecting and maintaining water resources.

Specific Objectives: Students will understand the unique properties of water

Required Materials: vocabulary chart, pepper, laundry detergent, bowls, cups,

Warm-up: Name a property of water

Wrap up from yesterday: None

Anticipatory Set (Lead-In): Why is water special?

Step-By-Step Procedures:

1. Define vocabulary.
2. Students will do an investigation on surface tension
3. Students will reflect about surface tension

Closure (Reflect Anticipatory Set): How does detergent work – exit slip

Assessment Based On Objectives: lab reflection

DI: None

Homework: None

Day 3 – February 13, 2009

Concept / Topic to Teach: Water

Standards Addressed: Standard 6.5

General Goal(s): Students will investigate and understand the unique properties and characteristics of water and its roles in the natural and human-made environment. Concepts include water as the universal solvent, the properties of water in all three states, the action of water in physical and chemical weathering, the ability of large bodies of water to store heat and moderate climate, the origin and occurrence of water on Earth, the importance of water and the importance of protecting and maintaining water resources.

Specific Objectives: Students will understand capillary action

Required Materials: toothpicks, water, pipette

Warm-up: Why does water have surface tension?

Wrap up from yesterday: None

Anticipatory Set (Lead-In): None

Step-By-Step Procedures:

1. Students will break toothpicks
2. Put into an asterisk shape
3. Put water in the middle and see how capillary action pulls the water into the pores of the broken wood – turning the asterisk into a star,

Closure (Reflect Anticipatory Set): What is capillary action?

Assessment Based On Objectives: Exit slip

DI: None

Homework: None

Day 4 – February 17, 2009

Concept / Topic to Teach: Water

Standards Addressed: Standard 6.5

General Goal(s): Students will investigate and understand the unique properties and characteristics of water and its roles in the natural and human-made environment. Concepts include water as the universal solvent, the properties of water in all three states, the action of water in physical and chemical weathering, the ability of large bodies of water to store heat and moderate climate, the origin and occurrence of water on Earth, the importance of water and the importance of protecting and maintaining water resources.

Specific Objectives: Students will understand why water is considered to be the “Universal Solvent.”

Required Materials: cups, pipette, oil, water, baking soda, salt, food coloring, property of water notes

Warm-up: What two types of atoms make up water?

Wrap up from yesterday: None

Anticipatory Set (Lead-In): None

Step-By-Step Procedures:

1. Students will conduct an experiment looking at what dissolves in oil and what dissolves in water.
2. Students will then infer why water is called the “universal solvent.”
3. Students will then take notes on the properties of water

Closure (Reflect Anticipatory Set): Why is water called the “universal solvent?”

Assessment Based On Objectives: Exit slip

DI: None

Homework: None

Day 10 – February 25, 2009

Concept / Topic to Teach: Water

Standards Addressed: Standard 6.5

General Goal(s): Students will investigate and understand the unique properties and characteristics of water and its roles in the natural and human-made environment. Concepts include water as the universal solvent, the properties of water in all three states, the action of water in physical and chemical weathering, the ability of large bodies of water to store heat and moderate climate, the origin and occurrence of water on Earth, the importance of water and the importance of protecting and maintaining water resources.

Specific Objectives: Students will identify what physical weathering is.

Required Materials: lab sheet, lab materials

Warm-up: What is a continental climate?

Wrap up from yesterday: None

Anticipatory Set (Lead-In): None

Step-By-Step Procedures:

1. Students will investigate physical weathering
2. Students will use a sugar cube and beaker to break down the cube
3. Students will determine the definition of physical weathering based on the results

Closure (Reflect Anticipatory Set): None

Assessment Based On Objectives: lab conclusion

DI: None

Homework: Study for quiz on Friday

Day 11 – February 26, 2009**Concept / Topic to Teach:** Water**Standards Addressed:** Standard 6.5**General Goal(s):** Students will investigate and understand the unique properties and characteristics of water and its roles in the natural and human-made environment. Concepts include water as the universal solvent, the properties of water in all three states, the action of water in physical and chemical weathering, the ability of large bodies of water to store heat and moderate climate, the origin and occurrence of water on Earth, the importance of water and the importance of protecting and maintaining water resources.**Specific Objectives:** Students will identify what chemical weathering is.**Required Materials:** lab sheet, lab materials, vocab words, cross word puzzle**Warm-up:** What is a physical weathering?**Wrap up from yesterday:** None**Anticipatory Set (Lead-In):** None**Step-By-Step Procedures:**

1. Students will define weathering and erosion
2. Students will complete the chemical weathering lab
3. Students will use effervescent tablets to show chemical weathering
4. Students will write their own definition based on the results of the lab

Closure (Reflect Anticipatory Set): None**Assessment Based On Objectives:** lab conclusion**DI:** None**Homework:** Study for quiz on Friday; crossword puzzle