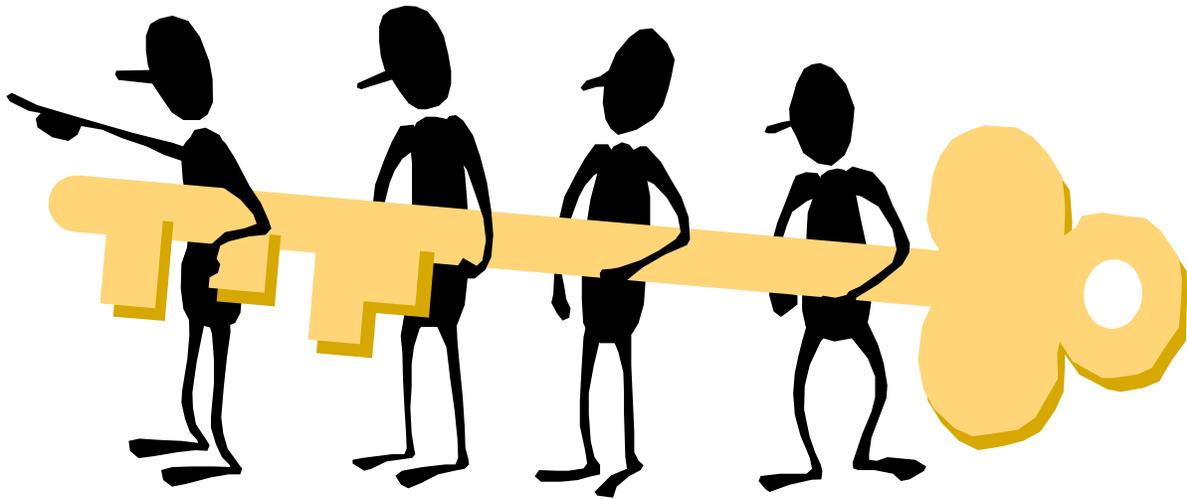


Problem-Based Learning



A New Approach To Teaching,
Training & Developing Employees



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"We cannot be what we need to be, by remaining what we are." ¹



What is Problem-Based Learning (PBL)?

Problem-based learning is a teaching or training method characterized by the use of "real world" problems as a context for individuals to learn critical thinking and problem solving skills and acquire knowledge. It involves both knowing and doing.

"Real world problems don't come neatly packaged. Data is rarely immediately available and there are always many different perspectives on each problem. Learning to grapple with such problems is an important aim of PBL." ¹

PBL can be applied to an individual or to a group of individuals. It can be applied to a classroom setting or any type of training program. It can even be used for employee development and even prepare someone for a new assignment or a promotion.

The Impact of PBL

PBL is in action *worldwide* at virtually every level of education or training imaginable. A search on "problem-based learning" at www.google.com reveals over 800,000 hits. From elementary schools through high schools, junior colleges through post-graduate level colleges, medical schools, law schools, and just about any occupation, PBL is in place. It cannot be dismissed as "just a fad".

Numerous law enforcement agencies across the U.S. have transitioned to a problem-based learning training model. This program has several names, the National Patrol Training Officer (PTO) Model, the Reno Model, the California PTO Model. PBL for law enforcement is also used in the State of Washington, in Canada at the RCMP and at the University of Delaware in their Professional Continued Studies Program for Law Enforcement Personnel.² More and more agencies are adopting this new model.

PBL is intertwined in most colleges and universities and even many K-12 schools. For example, the University of Delaware has embraced PBL throughout the campus in many different programs and courses. *"Over 25% of the UD faculty have participated either in PBL workshops or ITUE programs and more than 150 courses have been or are targeted for transformation."*³ In fact, UD has an extensive web-site (<http://www.udel.edu/pbl/>) on problem-based learning including their *PBL Clearinghouse* where you can read articles on PBL and even obtain PBL problems for a wide variety of disciplines.

¹ Author unknown "What is problem-based learning?" February 23, 2000. From Monash University web-site. <http://cleo.eng.monash.edu.au/teaching/pbl-list/> (March 1, 2003).

² University of Delaware Professional and Continuing Studies web-site. "Problem Based Learning For Law Enforcement Professionals." <http://www.continuingstudies.udel.edu/noncredit/cj/pbl.shtml>. Feb. 4, 2003.

³ Duch, Barbara j.; Groh, Susan E.; Allen, Deborah E. *The Power of Problem-Based Learning*, pg. 21. Stylus Publishing, Sterling, Virginia, 2001.



As a training manager and educator I have watched as many teaching ideas and training innovations have come and gone. PBL is, in my mind, one of the most sweeping and revolutionary changes in training and education, and there is no doubt for me that PBL is a perfect fit with law enforcement. I have never witnessed such results from any other approach to learning as I have with PBL. Our trainees graduating from this new program are at higher level out the chute than I have ever seen from trainees under our previous training models.

It should be emphasized that we have not changed the length of our training, we have not changed what we train, we have simply changed *how* we train. The results have been astounding and rewarding. A training model rooted in problem-based learning has the potential to change the face of law enforcement with this approach that teaches decision-making, critical thinking and problem-solving.

A quote from a patrol training officer in North Dakota supports what I have found within our own program. *"The difference (between the PTO and FTO programs) is so drastic that I can tell which program an officer was trained on simply by the types and numbers of questions that I am asked."*⁴

Why use PBL?

Whether you are a trainer, supervisor or manager, we all have two goals when teaching someone a new task, policy or skill. The first goal is to maximize retention. We need our training to stick. We do not have an infinite amount of time to train someone, so we want to make sure retention is high. Our second goal is to ensure transfer of knowledge. We are in a profession full of grays. Very little of what we do is truly black or white. So, it is impossible to train on every situation an employee might encounter and every variable for that situation. The best that we can do is provide a foundation that the employee can build upon to respond to new situations and new variables.

Traditional training is content driven. Now more than ever before, we ask our new hires or newly promoted individuals to learn mounds of information. How many times have you heard a veteran say, "Wow, I'm sure glad I'm not starting out now, there is too much to learn." Many veterans wonder if they could survive today's training programs simply because of how much needs to be learned in such a short time.

Well the problem with a content driven approach is just that. We are not able to significantly expand our length of training time to cover every little thing we need to train on. A better approach is to give them a solid foundation that is anchored in problem-solving, decision-making, and self-directed learning. That is what PBL does, it provides the anchor to our foundation. With PBL, learners apply knowledge, not just acquire it.

⁴ Mike Mitchell, PTO for Fargo PD, North Dakota. Quote obtained from the December 2004 Newsletter of the Police Society for Problem-Based Learning, Volume 1, Issue 1.



A significant benefit of PBL includes the opportunity for solving problems according to an individual's learning style (visual, auditory or kinesthetic) as well as their own multiple intelligences (as defined by Howard Gardner). Multiple Intelligences, or MIs, are different ways to develop intellectual ability. The diagram to the left reflects the 7 most common intelligences. Knowing our own learning style helps us develop coping strategies to compensate for our weaknesses and capitalize on our strengths. Knowing someone else's learning style helps us adjust our approach to that individual.



Gardner's Multiple Intelligences

Another benefit of PBL is the development of critical thinking skills. The learner employs a process to work through the problem. This process, known as the PBL Stages, can be used to address any problem the employee faces.

PBL emphasizes skill development in multiple intelligence, emotional intelligence and conflict resolution. These skills will aid any law enforcement employee throughout their entire career.

The PBL Stages

PBL forces learners to confront what they know as well as what they don't know. It requires them to ask questions, do research, and determine what actions to take. The following steps, or stages, are the basis of this problem-solving model. Once the learner is presented with an ill-structured problem, he or she works through these stages and documents each stage along the way.

Ideas

This is the brainstorming time. The learner lists all initial ideas for solving the problem. They later revisit these ideas to determine their validity in light of new information gained during the process of working through the problem.

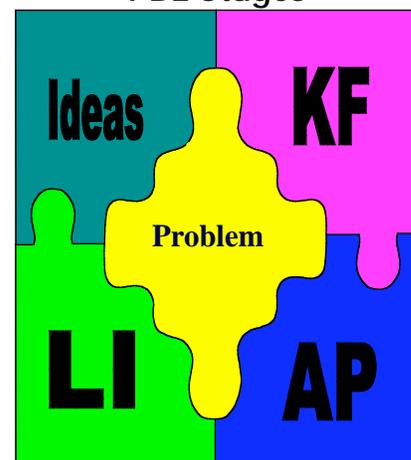
Known Facts

Here the learner lists the known facts from the problem statement. This helps clarify the complexity of issues raised in the problem. This may also involve knowledge they have about issues specific to the incident, such as code violations, conflict resolution techniques, etc.

Learning Issues

The learner is tasked with answering, "What do I need to know to solve this problem?" After consulting others, conducting research, and gathering information, the learner revisits his or her initial ideas to determine which still apply.

PBL Stages





Often, when they address their learning issues, they discover new ways to approach the problem. So it can be a process of eliminating ideas that don't work or discovering ideas that might work.

Action Plan

Here the learner develops an action plan based on his or her research and findings. It is what they are going to do or recommend to solve the problem.

Evaluation

The evaluation consists of three areas: how the learner and evaluator rate the product (end result) the process (how they employed the PBL stages to work through the problem) and how the learner will transfer knowledge from solving this problem to his or her job responsibilities.

The learner presents his or her responses in a number of different ways: verbally, in a written report, or as a formal presentation to someone. The evaluator assesses the mastery of subject material in that phase by the learner. Part of the evaluation focuses on the learner's problem solving as well as employing a collaborative learning process (reaching out to others). A tool called a Rubric can be used as a measuring device for evaluating several categories such as timeline, organization of project, grammar and spelling, competency on the topic, research, creativity and presentation. A sample Rubric is included at the end of this paper.

How does PBL work?

In a nutshell, a group (or individual) is given a problem to solve. Ideally, the problem is ill-structured and "real world". Using the PBL stages, the group (or individual) begins to solve the problem based on what they know or what they are curious about. The group/individual identifies what they need to know and they go out to find the solution, then return to discuss and evaluate their findings.

In PBL, it is the problem that drives the learning. Traditional education and training is just the opposite, it is content driven. In traditional models, individuals learn hordes of information and often struggle to put it all together. Seeing the big picture can be problematic with traditional approaches to teaching or training. With PBL you start with the big picture and gain information and insight to understand and respond to the big picture.

The ill-structured problem is posed in such a way that the individual discovers that they need to learn some new knowledge before they can solve the problem. Posing the problem **before** learning motivates the individual to learn in order to solve the problem.

PBL simultaneously develops both problem-solving strategies and disciplinary specific knowledge bases and skills by placing learners in the active role of problem solvers confronted with an ill-structured problem that mirrors those real-world problems.



With PBL, the trainer's role (insert supervisor or manager as needed) shifts from that of an absolute expert ("sage on the stage") to that of a facilitator ("guide on the side").⁵ Whether working with a group or working independently, PBL prompts learners to collaborate with others while at the same time supporting self-directed learning. PBL helps learners develop skills for productive work and integrates them into lifelong learning. A consensus among agencies employing a problem-based learning model is that employees begin the process of taking personal responsibility for their learning. They don't wait for training to be formalized or spoon feed to them. They recognize a void and work to fill that void.

Writing Problem-Based Learning Exercises

Known as Problem-Based Learning Exercises, or PBLEs, ill-structured problems are the foundation upon which the new law enforcement training model rests. The characteristics of ill-structured problems are:

- They are not easily solved – in fact, the problem can have more than one answer
- The learner initially lacks essential information that he or she must obtain to solve the problem
- The learner must consider a variety of facts and issues
- The learning occurs in the context of solving the problem and that learning has a real life context
- The learner learns and employs a process that he or she can apply to future problems

In crafting ill-structured problems it is important to avoid making the PBLE a pure research product. There must be the element of a real-life problem that does not have just one answer. The learner should not be able to just go to the web, do some research, and turn in a paper. The clever feature with PBLEs that have more than one answer, is that when a learner turns in a product that is not on the right track you send it back to them and challenge them to find an alternate answer or approach. Or, you instruct them from the outset to provide two possible solutions to the problem. This forces them to work beyond their comfort zone and promotes development of critical thinking skills.

Carefully designed PBLEs can also help develop leadership skills that facilitate collaboration, a requirement among today's law enforcement personnel. A collection of sample problem-based learning exercises is attached to this document.

⁵ Mergendoller, John Ph.D., Thomas, John W. "Managing Project-Based Learning: Principals from the Field". June 14, 2000. From the Buck Institute of Education web-site. <http://www.bie.org> (February 26, 2003).



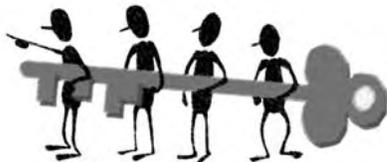
Conclusion

Learning is complex and global, not linear.⁶ Traditionally, law enforcement has taken a linear approach to training but very little of what we do in life follows a linear path. Law enforcement must work to create personnel that can *“think critically, evaluate evidence, analyze information and justify conclusions”*.⁷ To achieve this, law enforcement education and training must emphasize problem solving and decision-making skills, rather than rote learning. These skills require that learning come from the structure of problem solving. Problem-based learning, properly designed, implemented and assessed will do for law enforcement what it has done for countless other professions and disciplines throughout the world.

A die-hard believer in the traditional training model (Field Training Program or FTO) underwent PTO training when his agency decided to adopt the new Police Training Program (PTO). His experience is like many I’ve encountered while teaching the PTO course here in California. His theory was that if it worked for so many years, how could FTO be wrong. If it ain’t broke why fix it? The PTO class and a series of events conspired to dramatically alter his perception. He writes, *“Simply responding to problems in modern police work isn’t enough; now the focus must be that of problem solvers, which is not only expected by the chiefs of today but also demanded from the public that we serve.”*⁸

Problem-based learning is not a fad, it is here to stay. It has a three decade long record of success in education and a wide variety of professions. It has a four year record of overwhelming success in law enforcement agencies across this country. Since we rolled out our new training model in our Communications Center in March 2004, we have experienced amazing results. For us, there is no turning back.

The Key to PBL...



Collaborative Learning

The quote at the beginning of this paper promotes the need for change. A transformation is needed in the way we train and develop our employees to meet the changing demands of our profession. A profession that now requires problem-solving employees with critical thinking skills and sound decision-making skills. A training program rooted in problem-based learning provides us with this transformation.

⁶ Author unknown. “Why Should Educators Be Involved in PBL?” obtained from the Samford University web-site <http://www.samford.edu/schools/education/educweb.htm>. Date unknown. Site visited March 2, 2003.

⁷ Duch, Barbara j.; Groh, Susan E.; Allen, Deborah E. *The Power of Problem-Based Learning*, pg. 96. Stylus Publishing, Sterling, Virginia, 2001.

⁸ Mike Mitchell, PTO for Fargo PD, North Dakota. Quote obtained from the December 2004 Newsletter of the Police Society for Problem-Based Learning, Volume 1, Issue 1.

Student Intro & Rubric





An Introduction to Problem-Based Learning Exercises

Problem-based learning is a method of teaching that presents learners with a *real-life*, ill-structured problem that has no easy solution. Some of the benefits of problem-based learning (PBL) include an opportunity for problem solving according to individual learning styles and the development of critical thinking skills. It is knowing by doing—the learning takes place while you work through the problem.

The primary goal of Marin County Sheriff's Office Problem-Based Learning Exercises (PBLEs) is to further your knowledge in an important topic area so that you can enhance your skills in your current position or prepare for a new position. A secondary goal is to build "training materials" for our in-house training programs so that future trainees or employees will have access to these materials.

Once presented with a Problem-Based Learning Exercise (PBLE), you must follow the following steps to work through the problem. These steps are to be documented in your project and this documentation should be stored somewhere in the beginning pages of your project.

Ideas

This is the brainstorming time. You should list all initial ideas for solving the problem. Later, you revisit these ideas to determine their validity in light of new information gained during the process of working through the problem.

Known Facts

Here you identify what you know about the problem. What are the known facts from the problem statement? This helps clarify the complexity of issues raised in the problem. This may also involve listing your knowledge about issues specific to the incident, such as code violations, conflict resolution techniques, etc.

Learning Issues

What do you need to know (learn) to address the problem? At this point you begin to seek information from available resources. Once you start to pick up information, you often need to revise your ideas list. Often, when you address your learning issues, you discover new ways to approach the problem. So it can be a process of eliminating ideas that don't work or discovering ideas that might work.

Action Plan

Develop an action plan based on your research. What form will your project take? What will you need to do to get your project underway? What is your time estimate and how will you manage your time?

Evaluation

You will be evaluated on both the product and the process using the attached PBLE rubric. To be rated successful in completing this project you are not allowed to attain a score of "not achieved" in any of the task categories. A "not achieved" rating in a category will require that the project be returned to you to raise the score to achieved or above in those categories. On the "Timeline" task, getting a "not achieved" score cannot be remediated, therefore this may negatively reflect in the score of the annual evaluation category of "Timely Completion of Work".



Marin County Sheriff's Office



Rubric for Problem-Based Learning Exercises

Task	Not Achieved	Achieved	Superior	Exemplary
Timeline	Project not turned in or turned in late.	Project turned in on time but revisions needed.	Project turned in on time, no revisions needed.	Project turned in early, no revisions needed.
Organization of Project	Project unorganized and not easy to follow.	Project shows some organization, fairly easy to follow, work could flow more smoothly.	Project shows good organization and flows well.	Project very well organized and flows smoothly.
Grammar & Spelling	Written material has numerous spelling, grammar and structural errors.	Written material has spelling, grammar, and structural errors.	Written material turned in with few spelling, grammar, and structural errors.	Written material turned in with minimal spelling, grammar, and structural errors.
Competency on topic(s)	Does not demonstrate competency on project topic(s).	Demonstrates average competency on project topic(s).	Demonstrates high level of competency on project topic(s).	Demonstrates excellent level of competency on project topic(s).
Research	Failed to use more than one source to complete the project; source not quoted appropriately.	Used more than one source to complete the project; quoting of sources not consistent.	Used a variety of sources to complete the project; most sources quoted appropriately.	Used a wide variety of sources to complete the project; all sources quoted appropriately.
Creativity & Presentation	Project lacked a creative or imaginative approach, bland presentation.	Project showed some creativity and imagination. Presentation was good.	Project was original. Presentation was high-quality.	Project is a very creative model that others could use. Presentation was stimulating.

Title of PBLE:

Employee Name:
Project Rated By:

Due Date for Project:
Date Received:



Marin County Sheriff's Office



Team Rubric for Problem-Based Learning Exercise

Task	Not Achieved	Achieved	Superior	Exemplary
Group Work Addressing the problem Division of work Problem solving as a group	<ul style="list-style-type: none"> No participation in group Constant, unresolved bickering and complaining Tasks not completed due to group dysfunction Frequent facilitator intervention required to resolve disputes 	<ul style="list-style-type: none"> All members participated Group able to resolve disputes with minimal facilitator intervention Effective delegation of tasks All tasks completed 	<ul style="list-style-type: none"> Active and equal participation Collaborative effort by group members Group is able to resolve disputes without facilitator intervention 	<ul style="list-style-type: none"> Problem solving focus in group Analysed role requirements and prepared appropriate resolution method On-going dialogue regarding group functions Discussed and evaluated individual outcomes based on group expectations
Research Various sources Collated material for delivery Quality of research	<ul style="list-style-type: none"> "Cut and paste" approach, little or no originality No analysis or evaluation of research material No coordination of research among group members 	<ul style="list-style-type: none"> Material is relevant and organized Variety of available resources used Limited coordination of research among group members 	<ul style="list-style-type: none"> Analysed and applied relevant material from a variety of available resources Group members collaborated on research collection 	<ul style="list-style-type: none"> Evaluated and synthesized a variety of sources Included various technology and media Relevant research synthesized and presented for use by group members
Creativity & Presentation Quality of presentation materials Mastery of Topic Use of Multi-media Appropriate to audience Creative approach and presentation	<ul style="list-style-type: none"> Handouts "cut and paste" material Poorly presented material with numerous spelling, grammar and structural errors Superficial, cursory treatment of subject material, no evidence of mastery of topic Little use of multi-media opportunities No consideration of the audience, their knowledge or their experience Project lacked a creative or imaginative approach, bland presentation 	<ul style="list-style-type: none"> Applicable handouts Materials have some spelling, grammar and structural errors Demonstrates knowledge and comprehension of subject matter Utilizes multi-media materials to present subject material to appeal to different learning styles Project showed some creativity and imagination. Presentation was good 	<ul style="list-style-type: none"> Handouts are original material or properly cited Material has few spelling, grammar and structural errors Presents in clear and concise manner demonstrating analysis of subject matter Effective multi-media to present materials to appeal to all types of learning styles; encourages participant interaction Project was original. Presentation was high quality 	<ul style="list-style-type: none"> High quality presentation materials properly cited Project and presentation demonstrate mastery of topic Excellent use of multi-media Creative approach appealing to all learning styles Considered constraints of time and delivered coherent, accurate product appropriate to the audience Project is a very creative model that others could use. Presentation was stimulating.

Title of PBLE:	Employee:	Due Date for Project:
Project Rated by:	Date Completed Project Received:	

Internet Resources





PBL Resources

SECTION 1: WEB SITES SPECIFIC TO LAW ENFORCEMENT PBL

Police Society for Problem-Based Learning

www.pspbl.com. Developed by the two instructors and course curriculum creators for the National Model Patrol Training Officer course (PTO) and the Problem-Based Learning for Law Enforcement Personnel course. Some access is restricted to dues paying members. Dues are \$25 year.

Napa Valley Criminal Justice Training Center and PBL, California

www.nvccjtc.org/nvcbasiclecop.html

The Illinois Police Training Institute's PBL Curriculum by Andrew Casavant

www.pti.uiuc.edu/pdf/problembased.pdf

The COPS office web description of the PTO program

www.cops.usdoj.gov/default.asp?Item=48

SECTION 2: WHERE TO START LEARNING ABOUT PBL

www.pspbl.com see description in the Section 1.

<http://www.udel.edu/pbl/> the University of Delaware Problem Based Learning site. They have a huge site full of sample problems, a PBL clearinghouse and links to other PBL sites.

The Buck Institute for Education - www.bie.org. This site is full of comprehensive information on PBL, resource links, PDF files, etc.

San Diego University site http://edweb.sdsu.edu/crit/PBL_WebQuest.html They have a whole PBL exercise on investigating PBL!

The Classroom of the Future (COTF) web-site has a simplified version of the steps of PBL. <http://www.cotf.edu/ete/teacher/teacherout.html> The COTF serves as the National Aeronautics and Space Administration's (NASA's) premier research and development program for educational technologies. It also has some of the pros-cons of PBL.

<http://www.glef.org/PBL/> is the George Lucas Educational Foundation (GLEF) which has an Instructional Model on Problem Based Learning. There are also several links off the



site with short videos on PBL in action. I found The Video Gallery of GLEF at <http://store.yahoo.com/glef/tdapbl.html>.

<http://eduscapes.com/tap/> led me to a site chock-full of professional development resources including a link on citing internet sources <http://www.eduplace.com/parents/howto.html>

SECTION 3: SAMPLE PROBLEMS FOR PBL

www.pspbl.com see description in Section 1.

<http://www.mcli.dist.maricopa.edu/pbl/stories.html> Maricopa Center for Learning and Instruction. They have an awarding winning PBL lesson for mathematics titled "UBUYACAR" which has won numerous awards. The core problem question is this: You are interested in purchasing a new vehicle. What should your annual salary be to afford the car you want?

The NASA Science Files have a collection of PBL exercises and activities for students and educators. <http://scifiles.larc.nasa.gov/educators/index.html> The award winning NASA Science Files™ television broadcast and web site use Problem-Based Learning (PBL) to help students in grades 3-5 explore NASA research & missions and implement scientific inquiry in pursuit of solving real-world problems.

<http://www.imsa.edu/team/cpbl/whatis/whatis/slide6.html> has lots of simple (short) "ill-structured" problems used in PBL.

The University of Delaware PBL Clearinghouse <http://www.udel.edu/pbc/> (which actually sends you over to: <https://www.mis4.udel.edu/Pbl/>).

The American History Detective book - PBL for children
www.chathamhillgames.com/detective.html

SECTION 4: BACKGROUND, THEORY AND EXPLANATIONS OF PBL

<http://www.project-approach.com/foundation/learning.htm> is a link to a series of pages on the Project Approach Web site which reviews the theory behind teaching and learning with PBL.

<http://college.hmco.com/education/pbl/background.html#TheBasics> Houghton Mifflin's Project Based Learning Space provides a thorough explanation of how and why people use PBL.



<http://pblmm.k12.ca.us/PBLGuide/WhyPBL.html> A brief overview of the components and benefits of PBL from the Project Based Learning with Multimedia Web site.

<http://www.continuingstudies.udel.edu/noncredit/cj/pbl.shtml> from this site I found a course offering at the University of Delaware titled "Problem-Based Learning for Law Enforcement Professionals".

SECTION 5: THE PLANNING PROCESS

<http://www.grian.com/pblpage/pbl1.html> has good information on the process used in cooperative PBL groups. It is one of the most comprehensive "how-to" PBL sites I have found to date.

<http://www.project-approach.com/strategic/criteria.htm> Project Approach's tips on selecting an appropriate topic for a project. While primarily dealing with K-12, this site does have a great criteria checklist for choosing a topic.

Washington State Telecommunicators (dispatchers) have employed PBL training since 1999. Their site <http://www.cjtc.State.wa.us/CJTC/telecom/pbl.html> has a description of the process they used to incorporate PBL.

Sample PBLEs





PBLEs used in the New Patrol Training Program (PTO)

Vehicle Stop – used in the *Non-Emergency Incident Phase (A)*

You and your partner stop a car on a busy street with a great deal of pedestrian and vehicular traffic. You have stopped the car for speeding in a school zone. Upon stopping the vehicle you notice the passengers in the rear seats strapping on their seatbelts. As you approach the vehicle, you note the windows are down and you hear agitated voices. All occupants of the vehicle are from the same minority ethnic group. The passenger in the front seat complains loudly to the others about racial profiling. At this point he has not yet seen you. Several passersby have stopped to watch the event. Upon request the driver produces identification, but the passengers are argumentative and refuse to identify themselves.

You must present to your PTO two or more possible outcomes for this problem-based learning exercise. In each instance you must include: Ideas, Known Facts, Learning Issues, Action Plan.

Disorderly at Bar Radio Call – used in the *Emergency Incident Response Phase (B)*

You are on solo patrol at 1:00 a.m. You receive a radio call from a bar owner on the opposite side of your patrol area. He reports that an extremely agitated person has destroyed property in the bar and driven off without paying. The owner believes the driver also struck another vehicle in the parking lot as he sped off. The bar owner reports the driver and one female passenger as occupants of the vehicle. You respond to the call and, while en route to the bar, you observe that the suspect's vehicle has struck another car and is stalled in the middle of the road. Both driver and passenger are still in the vehicle. Back-up officers are en route.

You must present to your PTO two or more possible outcomes for this problem-based learning exercise. In each instance you must include: Ideas, Known Facts, Learning Issues, Action Plan.

Disorderly Youths in Park – used in the *Patrol Activities Phase (C)*

You are patrolling in your area and a woman near a park stops you. She reports that in the past several months she and several other residents have been having trouble with disorderly youths hanging around in the park. The park is surrounded on three sides by local residences with numerous walkway exits to surrounding streets. The local high school is situated directly opposite the park.

A records check indicates that neighbors and school officials have called the police about the youths in the park on numerous occasions. Police reports describing trespassing, burglaries, larceny, drug usage and disorderly conduct have been filed over the past six months. These events occurred during both daytime and evening hours. Uniform and plainclothes police have responded in the past with little effect.

Discuss this with your PTO and suggest possible solutions to this problem.

Sample PBLEs



Domestic Dispute – used in the *Criminal Investigation Phase (D)*

You are working with your partner on the afternoon shift when you receive a call regarding noise from a loud argument and crying children coming from an apartment in your patrol area. The neighbor who called in the complaint lives above the apartment where the disturbance is occurring. The dispatcher tells you that this is the fourth call of a similar nature in the past six weeks. No arrests were made at those calls, but the husband and the wife have both been cautioned regarding the consequences of domestic assault.

Upon arrival at the scene, you hear a child screaming inside and the sound of a struggle in progress. The husband answers the door and you see that both he and his wife have facial cuts. He moves into the kitchen and begins to yell at his wife. Each accuses the other of assault. Two children, aged five and three, are in the living room and both are crying. The apartment is dirty and there is garbage strewn throughout the apartment. As you are speaking to the wife, she advises you that she wants her husband arrested for assault. She also informs you that she would like him arrested for the marijuana he has in his drawer in the bedroom. The husband denies he has any drugs in the house.

Discuss this with your PTO and suggest possible solutions to this problem.

Sample PBLEs



PBLEs for use in Records/Warrants/Civil

Warrant Knowledge – *can be used for sworn or civilian personnel to gain an understanding of warrants. Use any existing warrant on file at your agency where the initial crime was committed in the jurisdiction of your agency. Substitute the appropriate information for this scenario.*

Joseph Smith calls you and wants to know if he has a warrant for his arrest. He gives you his full name, date of birth and physical descriptors. You check and find that we do indeed hold a \$5,000 warrant on him for shoplifting. As it turns out, this warrant is for a shoplift that occurred in our jurisdiction. You are curious and want to trace this warrant from the beginning to the end. Your job is to follow the complete process of this warrant. Include in your discovery when and why this warrant was issued, a brief description of policies and procedures related to processing, serving and clearing warrants, the different types of warrants, etc., and the final disposition on this warrant as you might see it played out.

Legal Terminology – *this can be assigned to new clerks or new trainers*

You are a clerk assigned to train a new clerk who has no experience with law enforcement or public safety. This new employee is struggling to learn and use legal terminology common to your agency. You must design a training plan to address this problem with this employee.

Designed by class participants at Modesto PD in training on Adult Learning Concepts and Problem-Based Learning that I taught on September 27, 2004

Data Entry Protocol – *this can be assigned to new clerks or new trainers*

You are a data entry clerk constantly faced with the problem of deciding what information you can correct when entering information into your agency's computer database. How will you know what to do in the various circumstances you will face?

Designed by class participants at Modesto PD in training on Adult Learning Concepts and Problem-Based Learning that I taught on September 27, 2004

New Equipment Assignment – *this can be assigned to employees who need to learn a new computer, new phone systems, etc.*

Starting next month, everyone will take turns on the department switchboard, a position you have not worked before. Your challenge is to learn as much about the position so you will be able to function as the operator. You must be able to identify where calls should be directed to, how to utilize the switchboard equipment and how to use proper phone etiquette. How will you meet this challenge?

Designed by class participants at Modesto PD in training on Adult Learning Concepts and Problem-Based Learning that I taught on September 27, 2004

Sample PBLEs



Systems Query – *this can be used to teach a new employee various systems used to query information likes names or addresses*

Deputy Halbertson call and asks you for all the information you have on a Jose Gonzales. You need to consider what information you must ask him to find the accurate information. Once this information is obtained, you begin to query our various systems. What information do you need to obtain from this deputy? What systems will you need to query? How will you run the query and interpret the results in a timely fashion?

Designed by class participants at Modesto PD in a class on Adult Learning Concepts and Problem-Based Learning that I taught on October 25, 2004

Warrant Missing in Action – *used to familiarize new employees with the agency's internal warrant confirmation process*

Deputy Francis has a subject stopped. Comm Center advises that the system shows an active warrant in the CLETS Wanted Persons System. You check the file but you are unable to confirm the warrant because you cannot find the hard copy. What can you do to accomplish confirmation of this warrant in a timely fashion? How long can the deputy detain the subject while you look for the warrant?

Designed by class participants at Modesto PD in a class on Adult Learning Concepts and Problem-Based Learning that I taught on October 25, 2004



PBLEs for Sworn Personnel Designed for Marin Sheriff's Office

Ethics Presentation – *can be used to see if they have a grasp of ethics*

Your watch commander has notified you that you have been asked to present on the topic of ethics to an upcoming Citizens Academy class. The only instructions given are that you have 1 hour to present on the topic, you must present at least 5 realistic ethical dilemma situations for the class to work through, you need to address what tools are available to guide peace officers when faced with ethical dilemmas, and you must address the impact of poor ethics on the agency and the profession.

Ethical Dilemma – *another version to see their grasp of the impact of ethics*

You are on patrol and roll to a report of a verbal dispute in the parking lot of a shopping center complex. When you arrive on scene, you notice two men nose to nose, one man has blood on the knuckles of his right hand, the other man has a bloody nose. You recognize the one with the bloody knuckles to be your good friend and the godfather of your daughter. When he recognizes you, he gives you a hearty welcome and says, "Oh thank god you are here, this prick just assaulted me, I want to press charges". Meanwhile, the other involved party witnesses this exchange, and announces, "Oh great, I can see how this is going to turn out."

Later in the same shift, dispatch gives you a phone message to call an off duty deputy. When you call, he asks if you can run a plate for him. You say sure, and ask him what's up. He tells you that his wife was involved in a non-injury accident earlier in the day and this plate belongs to the other party.

Identify the ethical dilemmas you face in these two scenarios and explain how and why you would respond in each of the situations. How might your response be interpreted by each of the involved parties of these two scenarios? What tools are at your disposal to guide you in handling ethical situations? What is the impact to you, the agency, and the profession of law enforcement if you chose not to respond in an ethically appropriate manner on these situations?

Sample PBLEs



Report Writing – one way to address report writing weaknesses at any level

Your sergeant has approached you to work with a new deputy on report writing. This new deputy asked the sergeant for help on his report writing because he wants to be a patrol deputy and knows how important report writing is on the streets. He tells you he struggled in the academy, barely passing in this category. He says he never really paid attention in his high school English classes so grammar is a challenge. He has difficulty spelling and always hated essays or creative writing assignments because he just couldn't put thoughts on paper. He thinks his dyslexia turned him off. He is motivated and open to suggestions and critique, but he is overwhelmed with where to start and how to tackle this problem.

The sergeant asked that while working with this deputy you develop a "how to" guide that others could use. He suggests that it have such components as: basic grammar, punctuation, sentence structure, and report writing fundamentals. He adds that anything you come across on the topics of dyslexia and writing might also be a benefit.

Note to reader, I found several good web-sites on report writing. This one was very good.
<http://www.iasaedu.org/publications/campprot/section8.htm>

What Makes a Good Patrol Deputy – can be used to prepare a deputy for the streets

You have expressed a desire to become a patrol deputy. While patrol duties share some similarities with custody duties, there are in fact many differences to the knowledge, skills and abilities you must have to not only successfully pass the training program, but to achieve the ultimate goal of a deputy respected by peers, supervisors and those you serve. Your problem is to determine what makes a good deputy and how you will strive to become one. You are to address the following questions in tackling this problem.

What are the knowledge, skills and abilities that are different for a patrol deputy? In looking at those, what are your own deficiencies? What have you done to correct those deficiencies? What still remains to be corrected and what is your plan to correct them? Who do you serve as a deputy and how do you deal with competing interests of those you serve?

Task Force New Detective – can be used to get up to speed in a new assignment

The Major Crimes Task Force is an organization with a culture vastly different from patrol. Each new person that enters the Major Crimes Task Force has different strengths and weaknesses and therefore different training needs. Because of this, and because the unit is small, training is informal and is often "on the job". Nonetheless, you must gain skills and proficiency as quickly as possible because your co-workers in the unit need you to carry your own case load, generate and successfully manage confidential informants, maintain a strong working liaison relationship with

Sample PBLEs



your assigned allied agencies, and demonstrate the ability to work both independently and yet cohesively in a team setting.

Your problem is to determine and plan the best course of action and timeline for you to acquire the necessary knowledge, skills and abilities to be a successful case agent, liaison and team member of the Task Force. When addressing this problem, it is important that you articulate the functions and responsibilities of a Task Force detective, what skills you have that prepare you to handle the position, what knowledge, skills or abilities you are lacking and how you will address those deficiencies.

As you work through your plan, you should also address the following questions:

- What are the key differences in being a good patrol deputy versus a good detective in the Task Force?
 - What different skills are required to successfully manage case loads, confidential informants and liaison responsibilities?
 - Where do the terms reactive and proactive fit in?
 - What skills can you use from your prior experiences that will aid you in learning and managing this new assignment?
-

Task Force Team Report - *can be used to build a broader knowledge of the unit, build team skills, give team members exposure to those who have oversight of the unit*

You, and the other detectives in the Marin County Major Crimes Task Force, are tasked with researching, designing and presenting a report about the operation, current trends and future direction of the Task Force. You will be presenting this report to a variety of audiences which may include the Assistant Commander and Commander of the Task Force, the Sheriff's Command Staff, the Marin County Chiefs of Police and the Major Crimes Task Force Oversight Committee.

Your project should contain information specific to the agencies funding the Task Force. This information could focus on past and current drug and crime demographics and what efforts have been made or are being made to deal with relevant issues in that jurisdiction. This project will require you to understand the budgetary and fiscal components of the Task Force. Your presentation should be crafted to fit your audience and to appeal to a variety of learning styles.

Sample PBLEs



PBLEs used in the Communications Center Training Program

Civil Division Duties – used for acquainting new call-takers with Civil matters

You are working in Comm Center and you pick up a Sheriff's phone line. The caller says that he was referred to the Sheriff's Office because he needs information about evictions. It's a weekend and no staff is on duty in the Sheriff's Civil Division. You want to be able to help the caller without sending a call out to a patrol deputy. How would you explain many of the responsibilities of the civil division, including an eviction, a civil body attachment or a keeper? What are many of the other duties of the Civil Division?

Comm Center Overview 2 – used for general orientation to what we do in Comm Center

You have been told that you will be participating in a recruit drive to solicit applicants for the position of Communications Dispatcher. As part of your participation, you have been tasked with preparing a presentation for use at the recruit drive. The presentation should be no more than 30-45 minutes in length and should have some handouts and visual displays. PowerPoint is an option for you as there will be a laptop, projector and TV available at the booth.

In creating your presentation you should address the following questions which are common questions asked by potential applicants. What is the work like? What are the shifts like? What kind of training is involved when the person is hired? Who are the agencies we dispatch for? What are the other dispatch centers in the county that we regularly work with (include CHP dispatch in this)? How do we contact the agencies we dispatch as well as the allied agencies? How will you know who to refer someone to, whether that is one of our agencies, one of the county departments, or one of our allied agencies?

Fire Dispatch Back Up – used as preparation for medical dispatchers to train at fire

You've just successfully completed medical training and your fire dispatchers are anxious to raise your knowledge, skills and abilities in order for you to be a resource as a back up fire dispatcher. Your challenge is to learn as much as you can about the various geographical zones or boundaries, to map out the agency responsible for each zone as well as their capabilities, and to identify and mark the specific fire station responsible for each zone. This also requires an understanding of such things as target hazards and State Responsibility Areas vs. Local Responsibility Areas.



Weapons of Mass Destruction – *used for training call-takers in critical events*

Your briefing at the beginning of shift included a teletype from Homeland Security raising the threat level to orange due to potential suicide bomber activity. There is a large event underway at the Marin Center. You receive a brief, anonymous call that a bomb will be remotely activated at that location in 3 minutes. You build a call and send it over. Deputies are just dispatched to the location when you and all your coworkers hear a huge explosion. Only 1 minute has passed since you received the call. The closest responding unit says the building is in flames. What happens next? What types of calls might you field? What will you say? What about your initial call? Are there any clues from that call that might help identify the suspect(s)? What happens from here? What is the impact not just on our agency, but on the public and the country?

Active Shooter – *used for training call-takers in critical events*

You receive the following call:

“This is the principal at Tam High. We have a school shooting here. Several students and teachers are injured and the suspect is still on the school grounds.” That call is followed by several calls from others at the school. What do you do? What do you need to be aware of in Active Shooter incidents? What liability do you have in regard to ensuring safety of those on scene at such an incident and the public safety units rolling in on the call? How can you lessen this liability? Should you even concern yourself with liability?

Primary and Secondary – *used for training new call-takers*

One of your primary responsibilities as a call-taker is to handle a wide variety of phone calls in a minimal amount of time. What you ask, how you ask it, and even how you respond to callers are key elements to meeting that objective. You will need to know about primary and secondary questions and how to apply them to that wide variety of calls. What are primary questions? What are secondary questions? How do you apply them? Do those questions differ from call to call? Do they differ in how you ask them?

OES Request – *used for training fire dispatchers (trainees or journey-level dispatchers)*

You are in the midst of the summer fire season. You receive a call from Woodacre ECC telling you they have an OES request. “A what???” What could they mean? How would you fulfill their request, and be prepared for another request in the future.

Sample PBLEs



Communication Styles & Conflict Resolution 2 – *used for training dispatchers or call-takers*

It is your first day on the job, and you are plugged into the console with your trainer in an observation mode. You notice as you listen to phone calls throughout the day as well as radio traffic that there is a very wide range of callers who call in any number of things. Your trainer tells you that you will talk to people who might be hostile, irate, fearful, suspicious, derisive, haughty, or even tentative; from different socioeconomic backgrounds and on calls for service ranging from parking complaints to in progress events. The trainer says it is important for you to learn everything you can about communication styles and conflict resolution techniques.

What are some communication styles? What are some conflict resolution techniques? How and when might you employ these techniques with callers on the phone, or even interactions with co-workers. Describe situations and apply the appropriate technique(s) to the situations.

Console Equipment – *We actually use this for training new call-takers. Can also be used for preparing new trainers.*

You are placed in the role of a trainer assigned a new trainee who has just completed CAD training and will now be joining you for the rest of the phase covering console equipment. It is your job to orient them on how to use the equipment at the console. Remember that not everyone learns the way you do, so it will be important to address different learning styles (auditory, visual, kinesthetic). You may not simply talk your way through this training, you must do a mix (talking, demonstrating, coaching them through it, using handouts and visual aids, having them train you and then critiquing them, etc.) In focusing on the equipment, you are to skip CAD operations and concentrate on the other equipment at the console.

Culture & Foreign Callers – *used for training new call-takers.*

You are on a 911 call where the screen says “RECORD NOT ON FILE”. Your caller is an immigrant Hispanic woman. You are able to obtain that she is calling from a ranch in West Marin, but you don’t know the address or ranch name. She is crying, saying in extremely broken English that she is frightened because her husband is angry with her. She has a two-year-old child with her. She and her husband are both undocumented. She has no access to a car and spends her days keeping house and raising her child.

Consider this call from two aspects, the technical or task side and the “people” or interpersonal side. In responding to these two aspects include all the factors that come into play. Do address the fact that the caller is Hispanic, and how that culture might affect or influence this type of call.



Earthquake – used for training call-takers in critical events

You're on your break, unwinding a bit when the earth moves below your feet for what seems like a minute. You hear things falling in nearby rooms and you realize a sizeable earthquake has hit the area. You rush back into Comm Center and it looks like everything is intact and your coworkers are ok. You begin answering an onslaught of calls. Within seconds it is incredibly noisy and the stress levels have shot through the ceiling. You learn that the GGB and the Richmond-San Rafael Bridge are closed and there is heavy damage to 101 at the county line. Preliminary reports are an 8.5 earthquake centered in the East Bay. What type of calls might you get? How will you handle them? What can you tell your callers? How will you make sure the radio dispatchers know you have a priority call in such a chaotic situation? What about your family and friends? What about your co-workers and their families and friends?

Preparing for the Role of Comm Center Trainer – used for someone who has expressed interest in becoming a trainer

You have expressed interest in becoming a Comm Center trainer. The role of trainer is a varied one with both challenges and rewards. A trainer can exert much influence with a trainee, and that influence might be positive or negative. While a trainer does not have to be an expert in their field, they must have a solid knowledge base. They must know their resources and know where to turn when they do not have the answer. The trainee you turn out is a reflection not just of you, but our training program, our dispatch center and this agency.

Your challenge is to tell us how you see your role as a trainer and how you will prepare yourself. Some questions you might address are: What are your strengths and weaknesses and what will you do to strengthen those weaknesses? How will you deal with conflict with your trainee, co-workers or possibly even supervisors? How will you deal with a trainee that is struggling? What do you need to know or do to take on your first trainee?

Suicide Prevention – used to train new call-takers on handling suicidal callers

Suicide Prevention calls in and advises that Sally Jones is on the phone with them, threatening to kill herself. They do not know where she lives. Suicide Prevention has no information on Sally. They believe she is at high risk for following through on her threat to kill herself.

Consider this call from the technical aspect. Time is of the essence. How can you help on this call? How can you find out where Sally is calling from so that you can send help?

Suicidal Call "Ben" – used to train new call-takers on handling suicidal callers

You are on the phone with a man who says he is going to kill himself. He has not called on 911 and he will not give you his phone number, address or full-name. He seems to want to talk, but he is adamant about not giving you information to help you locate him, at least not yet. He has

Sample PBLEs



told you that his name is Ben, that he is in his 40's and that he has been out of work six months and his car was recently repossessed.

Consider this call from two aspects, the technical or task side and the people or interpersonal side. In responding to these two aspects include all the factors that come into play. Do address the suicide risk for a man in Ben's position and what you can do or say that may impact or influence the outcome.

Helicopters and EMS – *used to train new medical dispatchers on helicopter responses*

Sitting at medical on a dayshift, you receive a call of a fall victim. The subject, a 34 year old farmhand, was clearing brush on a cliff side in Bolinas when he fell off the cliff about 40-50 feet and became impaled on a metal fence post. He is conscious, in extreme pain with the fence impaled in his abdomen. Your caller says the cliff is very steep and he cannot get down to his friend. He thinks someone will need to rescue him with a long line. The terrain is steep with jagged rocks. The cliff ends at the water, another 70 feet below the victim. There is no beach at the base of the cliff.

You must determine: the correct EMD call type, whether this call merits an automatic helicopter dispatch and, if so, which helicopter should be sent. If you do send a helicopter, who is the ground contact? How do you know the right type of helicopter to send? Who is responsible for tracking the helicopter times? Where will the helicopter transport to? What do you need to do if the helicopter does transport? If you were on a nightshift, would anything change in who you send? You are to justify your decisions with relevant information from CAD, policy and procedures, and the EMS agency.

Rural Lands – *used to train new call-takers on West Marin*

In our County, we have a mix of rural, agricultural lands and urban communities. While the application of primary and secondary questions is universal in call-taking (no matter what the setting) incidents in rural areas can pose unique challenges. What are some of those challenges, and how are you preparing yourself to deal with them?

Taking Hot Calls – *another one we like to assign to new call-takers, challenging them by putting them in the role of a trainer. This can also be used for new trainers.*

You are a trainer in the Communications Center and are approached by a new employee who is struggling with their call taking skills. The trainee specifically wants assistance taking control of a caller during "hot, in-progress" type calls, and asking the primary and secondary questions, and lastly, building the text of a call. You agree to help this employee, first by reviewing with them the primary and secondary questioning, including their relevance. Second, you will create three or four calls/scenarios in which to train and run those scenarios on the Star-Z simulator. Once completed, you must provide an honest oral critique of their call taking skills.

Sample PBLEs



What Makes an Ideal Law Dispatcher – *used to prepare a call-taker for radio training*

While Law Enforcement Dispatching shares some similarities with call-taking, there are in fact many differences to the knowledge, skills and abilities you must have to not only successfully pass the training program, but to achieve the ultimate goal of a dispatcher respected by peers, supervisors and field units. Your problem is to determine what makes an ideal law dispatcher and how you will become one. You are to include the following in addressing this problem.

What are the knowledge, skills and abilities that are different for a law enforcement radio dispatcher? In looking at those, what are your own deficiencies? What have you done to correct those deficiencies? What still remains to be corrected and what is your plan to correct them? Who do you serve as the Southern Marin Dispatcher (or MCSO dispatcher if training will be there) and how do you deal with competing interests of those you serve?

Supervisors Promotional PBLE – Overtime – *we used this one on a promotional exam for supervisor*

You have applied for the position of Supervising Communications Dispatcher. As part of the testing process, you are required to turn in this Problem Based Learning Exercise. You must complete this project on a computer and in completing this project, it is important that you document in writing your response through the PBL stages (Ideas, Known Facts, Learning Issues, and Action Plan). The problem is this:

Our Division has been experiencing quite a problem with overtime. Some people work too much, some work too little, some are impossible to reach, many are unable to work much OT due to family situations. What is an equitable way of distributing the overtime? Are there ways to reduce the amount of overtime? As a new supervisor, what would you do to address this problem?

Supervisors Challenge – Intoxicated Employee – *this is assigned to new supervisors*

You are the supervisor on a nightshift. Because of a full shift, you are able to take some “administrative time” in the office to catch up on evaluations. Forty-five minutes into the shift, a senior dispatcher comes back to the office saying that the dispatcher working the medical console appears to be intoxicated or under the influence of medications. He also explains this has been observed by other dispatchers in the room. The senior dispatcher explains that it looks as if the intoxicated employee may have contributed to the death of a patient on a recent medical call. This is not the first concern that has been raised about this employee.

How you would deal with this issue as a supervisor? How would you protect the interest of the agency, the division and of the employee?

Sample PBLs



CAD Commands for Law Dispatch – *for new radio dispatchers to gain CAD skills*

As a call-taker, your exposure to many of the CAD commands used on the command line by the radio dispatcher may have been limited. Even if you did listen and follow along, if you made a mistake, it was ok because the law dispatcher was right there to type it themselves or guide you through. Now, you are the one in the hot seat and the responsibility to know those commands inside and out falls squarely on your shoulders.

Your problem is to learn these commands thoroughly in a very short time, by the end of this Phase and convince your trainer you have them down. Not only must you know each command, what it means and how to input it into CAD, but you must also recognize the different ways traffic from a field unit might be received that would cause you to use those commands. So, this is much more than rote memorization, this means you must convey understanding and ability. Concentrate on the CAD cheat sheet “CAD Law – Unit Initiated Codes” and, using any means, convince your trainer of your understanding and your ability to use these codes quickly and efficiently.

Juggling at Law Dispatch – *for new radio dispatchers to learn how to prioritize*

Let’s just imagine for a moment that you have a hobby outside work and that hobby is juggling. You are a master juggler and can wow any audience. Many dispatchers will tell you that law dispatching is a master juggling operation. Your problem is to tell us how law dispatching and juggling are similar and how you will learn to become a master juggler at law dispatching.

In addressing this problem, focus on the prioritizing of radio traffic and calls for service. You are a master juggler on your off time, how will you become a master juggler at dispatching? How will you hone your skills? What will guide you in what call to handle first, what transmission to respond to first, what task to attend to first?

Foot Pursuit – *for new radio dispatchers to learn how to handle foot pursuits*

The Tiburon unit is downtown on foot patrol. You hear a very scratchy transmission from him but you can’t make out his traffic, only his call sign. The beat partner tells you he heard “foot pursuit” but nothing more. What do you need to do? What order do you need to do things? Who do you need to notify and how will you notify them? What radio talkgroups will you use? Do you need a patch? How will you do that? What policy issues guide you in handling foot pursuits? What will a sergeant or watch commander be concerned about and how does that involve you?

Vehicle Pursuit – *for new radio dispatchers to learn how to handle vehicle pursuits*

Murphy is hard at work. No sooner than you plug in do you receive this transmission, “PD 9M62 in pursuit!” OHMYGOSH, it is your very first vehicle pursuit. What do you need to do? What order do you need to do things? Who do you need to notify and how will you notify them? What radio

Sample PBLEs



talkgroups will you use? Do you need a patch? How will you do that? What policy issues guide you in handling pursuits? What will a sergeant or watch commander be concerned about and how does that involve you?

MERA & Law Dispatch – *to prepare new radio dispatchers to work through a critical event*

You are working the law console (SM or SO). It's been a very quiet night and you've been able to kick back and enjoy the shift. Out of the blue you receive a radio transmission from an officer (or deputy) who says he has been ambushed, shots have been fired, and he needs help.

Using any law agency we dispatch for (the console where you are training) and any location, you are to develop a scenario that includes what steps need to be taken by you to handle this incident. Units from all over Marin will be responding, including medical and fire personnel. In your scenario, address how the radio system comes into play. How will it work with a mix of conventional users and MERA users? How will it work under just the MERA system? How will you guide the various units to where they need to be on the MERA system? Will your control station be useful? If so, how?
