



**COMMON TRAINING**  
**MASTER CADET**  
**INSTRUCTIONAL GUIDE**



**SECTION 1**

**EO M504.01 – PARTICIPATE IN THE CADET FITNESS ASSESSMENT**

Total Time:

2 x 30 min

**PREPARATION**

**PRE-LESSON INSTRUCTIONS**

Resources needed for the delivery of this lesson are listed in the lesson specification located in A-CR-CCP-705/PG-001, *Master Cadet Qualification Standard and Plan*, Chapter 4. Specific uses for said resources are identified throughout the instructional guide within the TP for which they are required.

Review the lesson content and become familiar with the material prior to delivering the lesson.

Review CATO 14-18, *Cadet Fitness Assessment and Incentive Program* and become familiar with the material prior to delivering the lesson.

Photocopy the *Individual Score Sheet for the 20-m Shuttle Run Test* located at CATO 14-18, Annex A, Appendix 1 and the *Cadet Fitness Assessment and Incentive Level Results* located at CATO 14-18, Annex B, Appendix 3 for each cadet.

The cadets will complete the Cadet Fitness Assessment in pairs. The 20-m Shuttle Run Test will be conducted first, with the remaining stations run as a circuit.

**PRE-LESSON ASSIGNMENT**

Nil.

**APPROACH**

A practical activity was chosen for this lesson as it allows the cadets to participate in the Cadet Fitness Assessment in a safe and controlled environment.

**INTRODUCTION**

**REVIEW**

Review how to conduct the components of the Cadet Fitness Assessment.

**OBJECTIVES**

By the end of this lesson the cadet shall have participated in the Cadet Fitness Assessment.

## **IMPORTANCE**

It is important for the cadets to participate in the Cadet Fitness Assessment to determine their personal fitness level. When conducted multiple times over the course of the year, the Cadet Fitness Assessment allows progress to be tracked. Determining personal fitness level will also allow the cadets to create personal goals and will assist with updating a personal activity plan.

**Teaching Point 1****Conduct a warm-up session composed of light cardiovascular exercises.**

Time: 5 min

Method: Practical Activity



The following information will be explained to the cadets during the warm-up session.

**PURPOSE OF A WARM-UP**

A warm-up session is composed of stretches and light cardiovascular exercises designed to:

- stretch the muscles;
- gradually increase respiratory action and heart rate;
- expand the muscles' capillaries to accommodate the increase in blood circulation which occurs during physical activity; and
- raise the muscle temperature to facilitate reactions in muscle tissue.

**GUIDELINES FOR STRETCHING**

The following guidelines should be followed while stretching to prepare for physical activity and to help prevent injury:

- Stretch all major muscle groups, including the back, chest, legs, and shoulders.
- Never bounce while stretching.
- Hold each stretch for 10–30 seconds to let the muscles release fully.
- Repeat each stretch two to three times.
- When holding a stretch, support the limb at the joint.
- Static stretching, which is stretching a muscle and holding it in position without discomfort for 10–30 seconds, is considered the safest method.
- Stretching helps to relax the muscles and improve flexibility, which is the range of motion in the joints.
- As a guide, allow 10 minutes to warm up for every hour of physical activity.



The stretches chosen should focus on the areas of the body that will be used the most during the physical activity.

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**ACTIVITY**

**OBJECTIVE**

The objective of this warm-up activity is to stretch the muscles and perform light cardiovascular exercises to prepare the body for physical activity and to help prevent injuries.

**RESOURCES**

Nil.

**ACTIVITY LAYOUT**

Nil.

**ACTIVITY INSTRUCTIONS**

1. Arrange the cadets in either a warm-up circle or in rows (as illustrated in Figures 1 and 2).

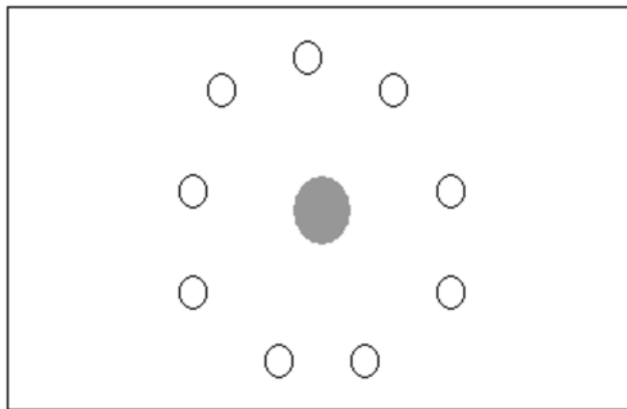


Figure 1 Instructor in the Centre of a Warm-Up Circle

*Note.* Created by Director Cadets 3, 2006, Ottawa, ON: Department of National Defence.

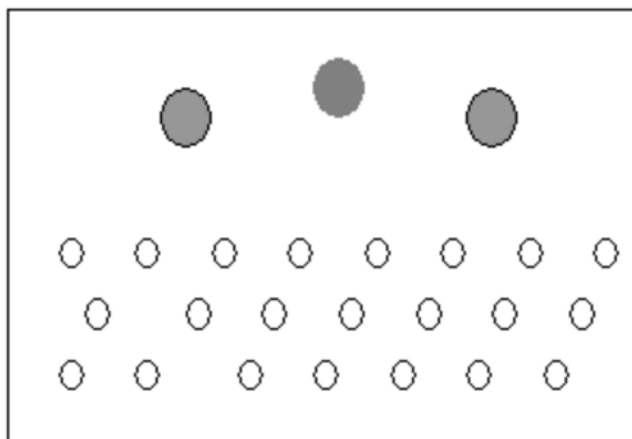


Figure 2 Instructor at the Front with Two Assistant Instructors

*Note.* Created by Director Cadets 3, 2006, Ottawa, ON: Department of National Defence.

2. Demonstrate before having the cadets attempt each stretch / light cardiovascular exercise.

3. Assistant instructors may help demonstrate the exercises and ensure the cadets are performing them correctly.
4. Have cadets perform each stretch / light cardiovascular exercise.



Light cardiovascular exercises should be done to warm up the muscles prior to stretching to avoid injury to or tearing of the muscles. For example, running on the spot for 30 seconds or performing jumping jacks should be performed prior to conducting the stretches located at Attachment A.

### SAFETY

- Ensure there are at least two arm lengths between the cadets so they can move freely.
- Ensure the cadets perform the stretches and light cardiovascular exercises in a safe manner, following the guidelines for stretching listed in this TP.

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### CONFIRMATION OF TEACHING POINT 1

The cadets' participation in the warm-up session will serve as the confirmation of this TP.

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### Teaching Point 2

**Supervise while the cadets perform and score the Cadet Fitness Assessment.**

Time: 15 min

Method: Practical Activity



The cadets will participate in the Cadet Fitness Assessment in pairs.

The 20-m Shuttle Run Test will be conducted before the other assessments.

The remaining fitness-area tests will be conducted as a circuit and are as follows:

1. the curl-up,
2. the push-up, and
3. choose two of the following:
  - a. the trunk lift,
  - b. the shoulder stretch, and
  - c. the back-saver sit and reach.

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### ACTIVITY

#### OBJECTIVE

The objective of this activity is to have the cadets perform and score the Cadet Fitness Assessment.

#### RESOURCES

- CATO 14-18, *Cadet Fitness Assessment and Incentive Program*,

- Leger 20-m Shuttle Run Test CD,
- Measuring tape,
- CD player,
- Pylons,
- Gym mats,
- 12-cm measuring strips,
- Paper,
- Metre sticks,
- Coins,
- Back-saver sit and reach test apparatuses,
- *Individual Score Sheet for the 20-m Shuttle Run Test*, and
- *Cadet Fitness Assessment and Incentive Level Results*.

### ACTIVITY LAYOUT

IAW CATO 14-18, Annex A.

### ACTIVITY INSTRUCTIONS

1. Divide the cadets into pairs.



The cadets will remain in pairs throughout the Cadet Fitness Assessment.

2. Distribute the *Individual Score Sheet for the 20-m Shuttle Run Test*, the *Cadet Fitness Assessment and Incentive Level Results*, and pens / pencils to one cadet from each pair.
3. Have the cadets with the score sheet print their partner's name on the score sheet and sit behind the starting line ready to record results.
4. Conduct the 20-m Shuttle Run Test IAW CATO 14-18, Annex A, Appendix 1.
5. Once completed, have the cadets who completed the 20-m Shuttle Run Test become the scorekeepers and the scorekeepers become the runners; and repeat Steps 2–4.
6. Conduct the remaining fitness-area tests as a circuit IAW CATO 14-18, Annex A.

### SAFETY

- Ensure a designated first-aider and first aid kit are available.
- Ensure water is available for the cadets after they complete the 20-m Shuttle Run Test.
- Ensure that the curl-up and push-up are conducted using the proper position / form.
- The cadets shall not bounce or hyperextend their backs while performing the trunk lift.

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## CONFIRMATION OF TEACHING POINT 2

The cadets' participation in the Cadet Fitness Assessment will serve as the confirmation of this TP.

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### Teaching Point 3

**Conduct a cool-down session composed of light cardiovascular exercises.**

Time: 5 min

Method: Practical Activity

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The following information will be explained to the cadets during the cool-down session.

### PURPOSE OF A COOL-DOWN

A cool-down is composed of stretches and light cardiovascular exercises designed to:

- allow the body time to slowly recover from physical activity and to help prevent injury;
- prepare the respiratory system to return to its normal state; and
- stretch the muscles to help relax and restore them to their resting length.



The stretches chosen should focus on the areas of the body that were used the most during the sports activity.

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## ACTIVITY

### OBJECTIVE

The objective of the cool-down is to stretch the muscles and perform light cardiovascular exercises that allow the body time to recover from physical activity, and to prevent injury.

### RESOURCES

Nil.

### ACTIVITY LAYOUT

Nil.

### ACTIVITY INSTRUCTIONS

1. Arrange the cadets in either a warm-up circle or in rows (as illustrated in Figures 1 and 2 of TP 1).
2. Demonstrate before having the cadets attempt each stretch / light cardiovascular exercise.
3. Assistant instructors may help demonstrate the movements and ensure the cadets are performing them correctly.

4. Have cadets perform each stretch / light cardiovascular exercise.

#### **SAFETY**

- Ensure there are at least two arm lengths between the cadets so they can move freely.
- Ensure the cadets perform the stretches and light cardiovascular exercises in a safe manner, following the guidelines for stretching listed in TP 1.

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#### **CONFIRMATION OF TEACHING POINT 3**

The cadets' participation in the cool-down session will serve as the confirmation of this TP.

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#### **END OF LESSON CONFIRMATION**

The cadets' participation in the Cadet Fitness Assessment will serve as the confirmation of this lesson.

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#### **CONCLUSION**

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#### **HOMEWORK / READING / PRACTICE**

Nil.

#### **METHOD OF EVALUATION**

Nil.

#### **CLOSING STATEMENT**

The Cadet Fitness Assessment determines personal fitness level, and is an excellent tool for tracking progress in personal fitness.

#### **INSTRUCTOR NOTES / REMARKS**

The Cadet Fitness Assessment is an individual assessment used to set personal fitness goals. Results from this assessment shall not be used for competition or classification among cadets.

The Cadet Fitness Assessment shall be set up prior to conducting this EO.

This EO shall be conducted at the start and the end of the training year.

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#### **REFERENCES**

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A0-204 CATO 14-18 D Cds (2010). *Cadet fitness assessment and incentive program*. Ottawa, ON: Department of National Defence.

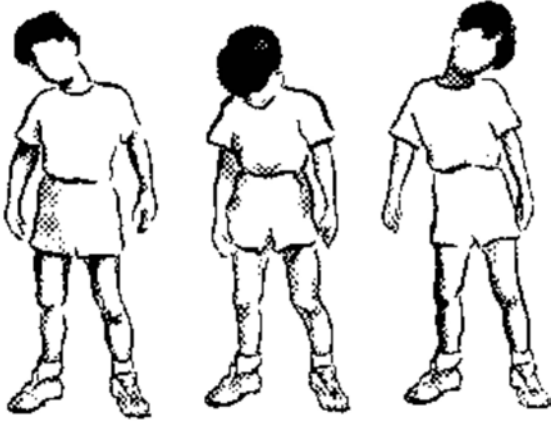
C0-095 ISBN 0-7360-5962-8 The Cooper Institute. (n.d.). *Fitnessgram / activitygram test administration kit: Fitnessgram 8.0 stand-alone test kit*. Windsor, ON: Human Kinetics.

C0-167 ISBN 0-7360-5866-4 Meredith, M., & Welk, G. (Eds.). (2005). *Fitnessgram / activitygram: Test administration manual* (3rd ed.). Windsor, ON: Human Kinetics.




## SAMPLE STRETCHES

a. Neck:

 <p data-bbox="365 798 682 829">Figure A-1 Neck Stretch</p> <p data-bbox="227 850 820 945"><i>Note.</i> From <i>Moving on the Spot: A Collection of 5 Minute Stretch and Movement Sessions</i>, by B. Hanson, 1999, Toronto, Ontario: Toronto Public Health. Retrieved October 26, 2006, from <a href="http://www.lin.ca/resource/html/dn3.htm#1">http://www.lin.ca/resource/html/dn3.htm#1</a></p>	<p data-bbox="990 577 1404 682">Slowly roll your head across your chest from shoulder to shoulder. Do not roll your head backwards.</p>
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b. Shoulders:

 <p><b>Figure A-2 Shoulder Push</b></p> <p><i>Note.</i> From <i>Moving on the Spot: A Collection of 5 minute Stretch and Movement Sessions</i>, by B. Hanson, 1999, Toronto, Ontario: Toronto Public Health. Retrieved October 26, 2006, from <a href="http://www.lin.ca/resource/html/dn3.htm#1">http://www.lin.ca/resource/html/dn3.htm#1</a></p>	<p>Stand and extend your arms behind you, interlocking your fingers. Push up and back with your shoulders.</p> <p>Hold this position for a minimum of 10 seconds.</p>
 <p><b>Figure A-3 Shoulder Shrug</b></p> <p><i>Note.</i> From <i>Moving on the Spot: A Collection of 5 minute Stretch and Movement Sessions</i>, by B. Hanson, 1999, Toronto, Ontario: Toronto Public Health. Retrieved October 26, 2006, from <a href="http://www.lin.ca/resource/html/dn3.htm#1">http://www.lin.ca/resource/html/dn3.htm#1</a></p>	<p>Stand and raise your shoulders as high as possible and then lower your shoulders, stretching your neck up.</p> <p>Pull your shoulders back as far as possible and then round your shoulders forward by pushing your shoulders forward as far as possible.</p> <p>Hold each position for a minimum of 10 seconds.</p>
 <p><b>Figure A-4 Arm Circles</b></p> <p><i>Note.</i> From <i>Warm Ups</i>, by Martha Jefferson Hospital, Copyright 2001 by Martha Jefferson Hospital. Retrieved October 26, 2006, from <a href="http://www.marthajefferson.org/warmup.php">http://www.marthajefferson.org/warmup.php</a></p>	<p>Hold your arms straight out, palms up. Make small circles with your arms, gradually increasing the size.</p> <p>Reverse the direction of your circles.</p>
 <p><b>Figure A-5 Shoulder Stretch</b></p> <p><i>Note.</i> From <i>Smart Start: A Flexible Way to Get Fit</i>. Retrieved October 26, 2006, from <a href="http://www.in-motion.ca/walkingworkout/plan/flexibility/">http://www.in-motion.ca/walkingworkout/plan/flexibility/</a></p>	<p>Either standing or sitting, take your right arm in your left hand and bring it across your chest, supporting the joint by holding it behind the elbow. Pull the elbow lightly towards your chest. You should feel the stretch in your right shoulder.</p> <p>Hold this position for a minimum of 10 seconds and repeat on the opposite side.</p>

c. Arms:



Figure A-6 Wrist Rotations

Note. From *Exercises*. Copyright 1998 by Impacto Protective Products Inc. Retrieved October 26, 2006, from <http://www.2protect.com/home.htm>

Rotate your hands in circular motions at the wrist.  
Change direction and repeat on both sides.



Figure A-7 Triceps Stretch

Note. From *Smart Start: A Flexible Way to Get Fit*. Retrieved October 26, 2006, from <http://www.in-motion.ca/walkingworkout/plan/flexibility/>

Stand and bring your right arm over your head, bent at the elbow. Use your left hand to gently pull your arm down.

Hold this position for a minimum of 10 seconds and repeat on the opposite side.



Figure A-8 Forearm Stretch

Note. From *Exercise Programme for Squash, Tennis, Softball, Handball*. Retrieved October 26, 2006, from <http://www.physionline.co.za/conditions/article.asp?id=49>

In a kneeling position, place your hands on the floor in front of you with your fingers pointing toward your knees, and your thumbs pointing out. Keeping your hands flat on the floor, lean back.

Hold this position for a minimum of 10 seconds.

d. Chest and Abdominals:



Figure A-9 Chest Stretch

Note. From *Smart Start: A Flexible Way to Get Fit*. Retrieved October 26, 2006, from <http://www.in-motion.ca/walkingworkout/plan/flexibility/>

Stand facing a wall. With your right arm bent and your elbow at shoulder height, place your palm against the wall. Turn your body away from your right arm. You should feel the stretch on the front side of your armpit and across the front of your chest.

Hold this position for a minimum of 10 seconds and repeat on the opposite side.



Figure A-10 Side Stretch

Note. From *Moving on the Spot: A Collection of 5 minute Stretch and Movement Sessions*, by B. Hanson, 1999, Toronto, Ontario: Toronto Public Health. Retrieved October 26, 2006, from <http://www.lin.ca/resource/html/dn3.htm#1>

Stand with your left arm up over your head. Bend at the waist towards the right side of your body.

Hold this position for a minimum of 10 seconds and repeat on the opposite side.

e. Back:



Figure A-11 Lower Back Stretch

*Note.* From *Smart Start: A Flexible Way to Get Fit*. Retrieved October 26, 2006, from <http://www.in-motion.ca/walkingworkout/plan/flexibility/>

Lie on your back and bring your knees toward your chest. Grasp the back of your knees.

Hold this position for a minimum of 10 seconds.

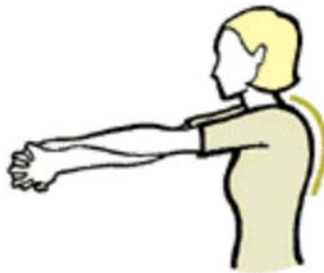


Figure A-12 Upper Back Stretch

*Note.* From *Smart Start: A Flexible Way to Get Fit*. Retrieved October 26, 2006, from <http://www.in-motion.ca/walkingworkout/plan/flexibility/>

Extend your arms straight in front of you at shoulder height crossing one arm over the other. With the palms facing each other, intertwine your fingers and press out through your arms. Let your chin fall to your chest as you exhale. You should feel the stretch in the upper back.

Hold this position for a minimum of 10 seconds and repeat on the opposite side.

f. Legs:



Figure A-13 Hamstring Stretch

Note. From *Smart Start: A Flexible Way to Get Fit*. Retrieved October 26, 2006, from <http://www.in-motion.ca/walkingworkout/plan/flexibility/>

Lie flat on the floor with your knees bent and your back flat on the floor. Slowly raise and straighten one leg, grasping it behind your thigh with both hands.

Hold this position for a minimum of 10 seconds.



Figure A-14 Inner Thigh Stretch

Note. From *Smart Start: A Flexible Way to Get Fit*. Retrieved October 26, 2006, from <http://www.in-motion.ca/walkingworkout/plan/flexibility/>

Sit on the floor with your knees bent and the soles of your feet together. Grab your toes and pull yourself forward while keeping your back and neck straight.

Hold this position for a minimum of 10 seconds.

Grab your ankles and push your knees down toward the floor with your elbows.

Hold this position for a minimum of 10 seconds.



Figure A-15 Hip Flexor

Note. From *Smart Start: A Flexible Way to Get Fit*. Retrieved October 26, 2006, from <http://www.in-motion.ca/walkingworkout/plan/flexibility/>

Kneel on your right knee. Position your left foot in front of you, bending your knee and placing your left hand on that leg for stability. Keep your back straight and abdominal muscles tight. Lean forward, shifting more body weight onto your front leg. You should feel the stretch in the front of your hip and the thigh of the leg you are kneeling on. Cushion your kneecap with a folded towel if necessary.

Hold this position for a minimum of 10 seconds and repeat on the opposite side.

f. Legs Continued:



Figure A-16 Ankle Rotations

Note. From *Running Exercises*. Retrieved October 26, 2006, <http://www.physionline.co.za/conditions/article.asp?id=46>

From a sitting position, rotate your foot in a clockwise, and then a counter-clockwise, direction.

Switch and repeat on the opposite side.



Figure A-17 Calf Stretch

Note. From *Smart Start: A Flexible Way to Get Fit*. Retrieved October 26, 2006, from <http://www.in-motion.ca/walkingworkout/plan/flexibility/>

Stand three steps away from and facing a wall. Step in towards the wall with your right leg, bending your right knee and keeping your left leg straight. Extending your arms with your palms forward, reach out to the wall and let your body fall toward the wall. Keep your toes forward and your heels down. Lean your body into the wall with your left leg straight behind your body. You should feel the stretch in your left calf.

Hold this position for a minimum of 10 seconds and repeat on the opposite side.



Figure A-18 Quadriceps Stretch

Note. From *Smart Start: A Flexible Way to Get Fit*. Retrieved October 26, 2006, from <http://www.in-motion.ca/walkingworkout/plan/flexibility/>

Stand with your hand against a wall for balance. Lift your left foot off the ground, bending your knee as if you are trying to kick your bottom with your heel. Do not lean forward at the hips. Grab and hold your ankle with your left hand. You should feel the stretch in your left thigh.

Hold this position for a minimum of 10 seconds and repeat on the opposite side.

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**COMMON TRAINING  
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**SECTION 2**

**EO M504.02 – UPDATE PERSONAL ACTIVITY PLAN**

Total Time:

30 min

**PREPARATION**

**PRE-LESSON INSTRUCTIONS**

Resources needed for the delivery of this lesson are listed in the lesson specification located in A-CR-CCP-705/PG-001, *Master Cadet Qualification Standard and Plan*, Chapter 4. Specific uses for said resources are identified throughout the instructional guide within the TP for which they are required.

Review the lesson content and become familiar with the material prior to delivering the lesson.

Photocopy Attachment A (Sample Personal Activity Plan) and Attachment B (Personal Activity Plan) for each cadet.

Photocopy this instructional guide for each cadet.

Physical fitness resources can be printed or ordered from <http://www.phac-aspc.gc.ca/pau-uap/fitness/downloads.html>, through the Public Health Agency of Canada to be given as handouts to the cadets.

**PRE-LESSON ASSIGNMENT**

Ensure the cadets have a copy of their Gold Star Personal Activity Plan and their Cadet Fitness Assessment results to bring to this lesson.

**APPROACH**

A practical activity was chosen for this lesson as it is an interactive way to allow the cadets to update their Personal Activity Plan. This activity contributes to the development of personal fitness goals in a fun and challenging setting.

**INTRODUCTION**

**REVIEW**

Nil.

**OBJECTIVES**

By the end of this lesson the cadet shall have updated their Personal Activity Plan (from Gold Star) for the current training year.

## **IMPORTANCE**

In order to help achieve success in physical fitness, it is important to know how to set personal fitness goals and to create an activity plan that will help to achieve those goals. This is important as physical fitness is one of the aims of the cadet program.

**Teaching Point 1****Have the cadets update their Personal Activity Plan from Gold Star.**

Time: 25 min

Method: Practical Activity



Describe the terms used in the Personal Activity Plan before having the cadets update their plan. Distribute the sample Personal Activity Plan handout located at Attachment A to each cadet.

A Personal Activity Plan is designed to identify current personal fitness level and to create individual goals to increase fitness level. There are a number of terms used within a Personal Activity Plan to describe type and intensity of activities.

**TYPES OF ACTIVITIES**

**Rest activities.** Activities that involve minimal physical effort (eg, homework, computer games and reading).

**Lifestyle activities.** Activities that are a part of a normal day (eg, walking, household chores and garbage sweeps).

**Aerobic activities.** Activities that improve aerobic fitness (eg, jogging, swimming and dancing).

**Aerobic sports.** Sports that involve a great deal of movement (eg, baseball, basketball and soccer).

**Muscular activities.** Activities that require strength (eg, weightlifting, wrestling and track and field sports).

**Flexibility activities.** Activities that involve stretching the muscles (eg, martial arts, stretching and yoga).

**INTENSITY OF ACTIVITIES**

**Rest.** Activities that involve sitting or standing, and little motion.

**Light.** Activities that involve slow movements, and are not tiring.

**Moderate.** Activities that are fairly intense (fall between light and vigorous).

**Vigorous.** Activities that involve quick movements or running, and increased respiration.

**ACTIVITY****OBJECTIVE**

The objective of this activity is to have the cadets update their Gold Star Personal Activity Plan.

**RESOURCES**

- Personal Activity Plan handout located at Attachment B,
- Cadet Fitness Assessment results, and
- Pens / pencils.

**ACTIVITY LAYOUT**

Nil.

## ACTIVITY INSTRUCTIONS

1. Discuss how the results of the Cadet Fitness Assessment can be used to create goals.



A cadet who scored 5 on the push-up and 10 on the curl-up assessments, may wish to set a long-term goal to improve muscular fitness. Their short-term goal may be to complete 8 push-ups and 12 curl-ups on the next assessment.

2. Distribute the Personal Activity Plan handout, located at Attachment B, to each cadet.
3. Supervise and provide assistance while the cadets update their Personal Activity Plans for the current training year by:
  - a. reviewing their Gold Star Personal Activity Plan;
  - b. reviewing their Cadet Fitness Assessment results;
  - c. listing current fitness and sports activities;
  - d. identifying areas that need improvement;
  - e. creating goals; and
  - f. listing planned fitness and sports activities.

## SAFETY

Nil.

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## CONFIRMATION OF TEACHING POINT 1

The cadets' participation in the activity will serve as the confirmation of this TP.

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## END OF LESSON CONFIRMATION

The cadets' updating their Personal Activity Plan will serve as the confirmation of this lesson.

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## CONCLUSION

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## HOMEWORK / READING / PRACTICE

The cadets should follow their Personal Activity Plan throughout the training year. The Personal Activity Plan will be evaluated by the cadet each time they complete the Cadet Fitness Assessment.

## METHOD OF EVALUATION

This EO is evaluated IAW A-CR-CCP-705/PG-001, *Master Cadet Qualification Standard and Plan*, Chapter 3, Annex B, 504 PC.

## CLOSING STATEMENT

One of the aims of the cadet program is physical fitness. A Personal Activity Plan is an important tool for creating and achieving goals, and will help to track progress in physical fitness.

**INSTRUCTOR NOTES / REMARKS**

This lesson shall follow the start of year Cadet Fitness Assessment (EO M504.01 [Participate in the Cadet Fitness Assessment]).

No time has been allocated for this EO. Cadets will update their personal activity plan independently during a training session.

Physical fitness resources can be printed or ordered from <http://www.phac-aspc.gc.ca/pau-uap/fitness/downloads.html>, through the Public Health Agency of Canada to be given as handouts to the cadets.

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**REFERENCES**

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C0-104 ISBN 0-662-26628-5 Public Health Agency of Canada. (1998). *Handbook for Canada's physical activity guide to healthy active living*. Ottawa, ON: Public Health Agency of Canada.

C0-105 ISBN 0-662-32897-3 Public Health Agency of Canada. (2002). *Teacher's guide to physical activity for youth 10–14 years of age*. Ottawa, ON: Her Majesty the Queen in Right of Canada.

C0-106 ISBN 0-662-32899-X Public Health Agency of Canada. (2002). *Let's get active! Magazine for youth 10–14 years of age*. Ottawa, ON: Her Majesty the Queen in Right of Canada.

C0-167 ISBN 0-7360-5866-4 Meredith, M., & Welk, G. (Eds.). (2005). *Fitnessgram / activitygram: Test administration manual* (3rd ed.). Windsor, ON: Human Kinetics.

C0-174 ISBN 978-0-7360-6828-4 Masurier, G., Lambdin, D., & Corbin, C. (2007). *Fitness for life: Middle school: Teacher's guide*. Windsor, ON: Human Kinetics.

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## SAMPLE PERSONAL ACTIVITY PLAN

Name: Shepherd, John

Date: 10 Sept

### START OF YEAR

#### CADET FITNESS ASSESSMENT #1 RESULTS

Assessment	Score
<b>Cardiovascular</b>	
20-m Shuttle Run Test	8
<b>Muscular Strength</b>	
Curl-up	20
Push-up	6
<b>Muscular Flexibility</b>	
Trunk Lift	6 inches
Shoulder Stretch	<b>Right:</b> Y
	<b>Left:</b> N
Back-Saver Sit and Reach	<b>Right:</b> 4 inches
	<b>Left:</b> 3 inches

#### CURRENT ACTIVITIES

List the activities that you participated in over the past week.

Date	Activity	Duration	Type of Activity	Intensity of Activity
Wednesday 3 Sept	Computer Games	3 hrs	Rest Activity	Rest
	Soccer	1 hr	Aerobic Sports	Moderate
	Stretching	15 min	Flexibility Activity	Light
Thursday 4 Sept	Soccer	1 hr	Aerobic Sports	Moderate
	Stretching	15 min	Flexibility Activity	Light
	Reading	2 hrs	Rest Activity	Rest
Friday 5 Sept	Yard Work	1 hr	Lifestyle Activity	Moderate
	Bike Riding	1 hr	Aerobic Activity	Moderate
	Watching Television	4 hrs	Rest Activity	Rest
Saturday 6 Sept	Bike Riding	1 hr	Aerobic Activity	Moderate
	Packing	3 hrs	Lifestyle Activity	Light
	Reading	1 hr	Rest Activity	Rest

Date	Activity	Duration	Type of Activity	Intensity of Activity
Sunday 7 Sept	Playing Video Games	2 hrs	Rest Activity	Rest
	Walking	30 min	Lifestyle Activity	Light
	Reading	1 hr	Rest Activity	Rest
Monday 8 Sept	Watching TV	3 hrs	Rest Activity	Rest
	Walking	1 hr	Lifestyle Activity	Light
	Reading	1 hr	Rest Activity	Rest
Tuesday 9 Sept	Sitting in Class	4 hrs	Rest Activity	Rest
	Reading	1 hr	Rest Activity	Rest
	Walking	1 hr	Lifestyle Activity	Light

### Areas That Need Improvement:

1. 20-m Shuttle Run Test score is low. Need to improve cardiovascular fitness.
2. Need to participate in more activities at a vigorous intensity.
3. Cut back on rest activities.

### GOALS

Remember that goals must be:

- Specific,
- Measurable,
- Achievable,
- Relevant, and
- Timed.

**Long-term goal for the training year:** To increase personal fitness level.

### Short-term Goals:

Goal	Date to Achieve By	Date Achieved
Score 15 on the 20-m Shuttle Run Test	Next Cadet Fitness Assessment	
Score 10 on the push-up assessment	Next Cadet Fitness Assessment	
Participate in five aerobic sports in the next week	17 Sept	



## PLANNED ACTIVITIES

List the activities that you plan to participate in.

<b>Week</b>	<b>Activity</b>	<b>Was the activity completed?</b>	<b>Why was the activity not completed?</b>
11 Sept- 17 Sept	Soccer for 2 hrs		
	Walking for 30 min / day		
	Biking for 2 hrs / twice a week		
18 Sept- 24 Sept	Run for 1 hrs		
	Recreational Sports for 1 hr		
	Walking for 30 min / day		
25 Sept- 1 Oct	Soccer for 2 hrs		
	Walking for 30 min / day		
	Swimming for 1.5 hrs		
2 Oct- 8 Oct	Biking for 2 hrs / twice a week		
	Recreational Sports for 1 hr / twice a week		
	Walking for 30 min / day		
9 Oct- 15 Oct	Recreational Sports for 1 hr / twice a week		
	Running / Walking for 30 min / day		
	Biking for 2 hrs / twice a week		
16 Oct- 22 Oct	Recreational Sports for 1 hr / twice a week		
	Running / Walking for 30 min / day		
	Biking for 2 hrs / twice a week		
23 Oct- 29 Oct	Recreational Sports for 1 hr / twice a week		
	Running / Walking for 30 min / day		
	Biking for 2 hrs / twice a week		

*Note.* Created by Director Cadets 3, 2008, Ottawa, ON: Department of National Defence.

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# PERSONAL ACTIVITY PLAN

Name: \_\_\_\_\_

Date: \_\_\_\_\_

## START OF YEAR

### CADET FITNESS ASSESSMENT RESULTS

Assessment	Score
<b>Cardiovascular</b>	
20-m Shuttle Run Test	
<b>Muscular Strength</b>	
Curl-up	
Push-up	
<b>Muscular Flexibility</b>	
Trunk Lift	
Shoulder Stretch	<b>Right:</b>
	<b>Left:</b>
Back-Saver Sit and Reach	<b>Right:</b>
	<b>Left:</b>

### CURRENT ACTIVITIES

List the activities that you participated in over the past week.

Date	Activity	Duration	Type of Activity	Intensity of Activity

Date	Activity	Duration	Type of Activity	Intensity of Activity

**Areas That Need Improvement:**

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**GOALS**

Remember that goals must be:

- Specific,
- Measurable,
- Achievable,
- Relevant, and
- Timed.

**Long-term goal for the training year:** \_\_\_\_\_

**Short-term Goals:**

Goal	Date to Achieve By	Date Achieved

### PLANNED ACTIVITIES

List the activities that you plan to participate in.

Week	Activity	Was the activity completed?	Why was the activity not completed?

## END OF YEAR

### CADET FITNESS ASSESSMENT RESULTS

Assessment	Score
<b>Cardiovascular</b>	
20-m Shuttle Run Test	
<b>Muscular</b>	
Curl-up	
Push-up	
<b>Flexibility</b>	
Trunk Lift	
Shoulder Stretch	<b>Right:</b>
	<b>Left:</b>
Back-saver Sit and Reach	<b>Right:</b>
	<b>Left:</b>

#### Areas That Need Improvement:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

#### Short-term Goals:

Goal	Date to Achieve By	Date Achieved

**PLANNED ACTIVITIES**

List the activities that you plan to participate in.

<b>Week</b>	<b>Activity</b>	<b>Was the activity completed?</b>	<b>Why was the activity not completed?</b>

## **REFLECTION**

Was your long-term goal for the training year met? \_\_\_\_\_

If applicable, why was your long-term goal not met? \_\_\_\_\_

What is your long-term goal following the completion of this training year? \_\_\_\_\_

**List some short-term goals that will help you achieve your long-term goal:**

<b>Goal</b>	<b>Date to Achieve By</b>	<b>Date Achieved</b>

*Note.* Created by Director Cadets 3, 2008, Ottawa, ON: Department of National Defence.





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**SECTION 3**

**EO M504.03 – EVALUATE PERSONAL ACTIVITY PLAN**

Total Time:

30 min

**PREPARATION**

**PRE-LESSON INSTRUCTIONS**

Resources needed for the delivery of this lesson are listed in the lesson specification located in A-CR-CCP-705/PG-001, *Master Cadet Qualification Standard and Plan*, Chapter 4. Specific uses for said resources are identified throughout the instructional guide within the TP for which they are required.

Review the lesson content and become familiar with the material prior to delivering the lesson.

**PRE-LESSON ASSIGNMENT**

Nil.

**APPROACH**

A practical activity was chosen for this lesson as it allows the cadets to evaluate their Personal Activity Plan in a safe and controlled environment.

**INTRODUCTION**

**REVIEW**

Nil.

**OBJECTIVES**

By the end of this lesson the cadet shall have evaluated their Personal Activity Plan.

**IMPORTANCE**

It is important for cadets to evaluate their Personal Activity Plan to determine if goals were met and to track progress in personal fitness.

---

**Teaching Point 1**

**Have the cadets evaluate their Personal Activity Plan.**

Time: 25 min

Method: Practical Activity

---

**ACTIVITY**

**OBJECTIVE**

The objective of this activity is to have the cadets evaluate their Personal Activity Plan.

**RESOURCES**

- Cadet Fitness Assessment results, and
- Personal Activity Plan from the start of the training year.

**ACTIVITY LAYOUT**

Nil.

**ACTIVITY INSTRUCTIONS**

1. Distribute the cadet's Personal Activity Plan and Cadet Fitness Assessment results.
2. Have the cadets compare their start of year and end of year Cadet Fitness Assessment results.
3. Have the cadets compare their actual and planned fitness and sports activities.
4. Have the cadets complete the reflection portion of the Personal Activity Plan.

**SAFETY**

Nil.

---

**CONFIRMATION OF TEACHING POINT 1**

The cadet's evaluation of their Personal Activity Plan will serve as the confirmation of this TP.

---

**END OF LESSON CONFIRMATION**

The cadet's evaluation of their Personal Activity Plan will serve as the confirmation of this lesson.

---

**CONCLUSION**

---

**HOMEWORK / READING / PRACTICE**

Nil.

**METHOD OF EVALUATION**

This EO is evaluated IAW A-CR-CCP-705/PG-001, *Master Cadet Qualification Standard and Plan*, Chapter 3, Annex B, 504 PC.

**CLOSING STATEMENT**

Evaluating a Personal Activity Plan will help determine if goals were met and track progress in personal fitness. This lesson promotes physical fitness, meeting one of the aims of the cadet program.

**INSTRUCTOR NOTES / REMARKS**

This lesson shall follow the end of year Cadet Fitness Assessment (EO M504.02 [Participate in the Cadet Fitness Assessment]).

No time has been allocated for this EO. Cadets will evaluate their personal activity plan independently during a training session.

Physical fitness resources can be printed or ordered from <http://www.phac-aspc.gc.ca/pau-uap/fitness/downloads.html>, through the Public Health Agency of Canada to be given as handouts to the cadets.

---

**REFERENCES**

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C0-104 ISBN 0-662-26628-5 Public Health Agency of Canada. (1998). *Handbook for Canada's physical activity guide to healthy active living*. Ottawa, ON: Public Health Agency of Canada.

C0-105 ISBN 0-662-32897-3 Public Health Agency of Canada. (2002). *Teacher's guide to physical activity for youth 10–14 years of age*. Ottawa, ON: Her Majesty the Queen in Right of Canada.

C0-106 ISBN 0-662-32899-X Public Health Agency of Canada. (2002). *Let's get active! Magazine for youth 10–14 years of age*. Ottawa, ON: Her Majesty the Queen in Right of Canada.

C0-167 ISBN 0-7360-5866-4 Meredith, M., & Welk, G. (Eds.). (2005). *Fitnessgram / activitygram: Test administration manual* (3rd ed.). Windsor, ON: Human Kinetics.

C0-174 ISBN 978-0-7360-6828-4 Masurier, G., Lambdin, D., & Corbin, C. (2007). *Fitness for life: Middle school: Teacher's guide*. Windsor, ON: Human Kinetics.

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**SECTION 4**

**EO C504.01 – EXAMINE THE USE OF TECHNOLOGY IN PHYSICAL FITNESS ACTIVITIES**

Total Time:

90 min

**PREPARATION**

**PRE-LESSON INSTRUCTIONS**

Resources needed for the delivery of this lesson are listed in the lesson specification located in A-CR-CCP-705/PG-001, *Master Cadet Qualification Standard and Plan*, Chapter 4. Specific uses for said resources are identified throughout the self study package within the section for which they are required.

Self study packages are intended to be completed by the cadet independently. More information about self study packages can be found in the forward and preface.

Review the lesson content and become familiar with the material prior to facilitating this lesson.

Photocopy the self study package located at Attachment A for each cadet.

**PRE-LESSON ASSIGNMENT**

Nil.

**APPROACH**

A self study was chosen for this lesson as it allows the cadet to examine in greater detail the use of technology in physical fitness activities at their own learning pace. This encourages the cadet to become more self-reliant and independent by focusing on their own learning instead of learning directed by the instructor.

**INTRODUCTION**

**REVIEW**

Nil.

**OBJECTIVES**

By the end of this lesson the cadet shall have examined the use of technology in physical fitness activities.

**IMPORTANCE**

It is important for cadets to examine the use of technology in physical fitness activities so they know about the advancement of technology, numerous programs and equipment and its use in physical activities.

---

## SELF STUDY PACKAGE INSTRUCTIONS

---

### OBJECTIVE

The objective of this self study package is to have the cadet examine the use of technology in physical fitness activities.

### RESOURCES

- Self study package, and
- Pen / pencil.

### ACTIVITY LAYOUT

Provide the cadet with a classroom or training area suitable to complete the self study package.

### ACTIVITY INSTRUCTIONS

1. Provide the cadet with a copy of the self study package located at Attachment A and a pen / pencil.
2. Allow the cadet 90 minutes to complete the self study package.
3. Provide assistance as required to the cadet.
4. Collect the self study package once the cadet has finished.
5. Review the self study package with the cadet.
6. Provide feedback to the cadet and indicate whether or not they have completed the Enabling Objective (EO).
7. Return the completed self study package to the cadet for their future reference.
8. Record the result in the cadet's logbook and Cadet Training Record.

### SAFETY

Nil.

---

### END OF LESSON CONFIRMATION

The cadet's completion of the self-study package will serve as the confirmation of this lesson.

---

### CONCLUSION

---

### HOMEWORK / READING / PRACTICE

Nil.

### METHOD OF EVALUATION

Nil.

### CLOSING STATEMENT

As cadets move from organized activities provided by cadet training to future education and / or work, the planning and scheduling of leisure time for fitness activities become the individual's responsibility. With the

advancement of technology and its use in the applications reviewed in the self study package, motivators and technical assistance is available for the individual wishing to continue their fitness activities.

**INSTRUCTOR NOTES / REMARKS**

Nil.

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**REFERENCES**

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C0-431 Mobile & Peruasive. (2008). *A brief survey of physical activity monitoring devices*. Retrieved October 20, 2009, from <http://www.icta.ufl.edu/projects/publications/chao08a.pdf>

C0-432 British Medical Journal. (2007). *Comparison of energy expenditure in adolescents when playing new generation and sedentary computer games: Cross sectional study*. Retrieved October 20, 2009, from <http://bmj.com/cgi/content/full/335/7633/1282>

C0-433 Reader's Digest. (2009). *Video game fitness*. Retrieved October 20, 2009, from [http://www.readersdigest.ca/health/cms/xcms/video-game-fitness\\_786\\_a.html](http://www.readersdigest.ca/health/cms/xcms/video-game-fitness_786_a.html)

C0-434 Reader's Digest. (2009). *What do video game ratings mean?* Retrieved October 20, 2009, from [http://www.readersdigest.ca/health/cms/xcms/video-game-fitness\\_186\\_a.html](http://www.readersdigest.ca/health/cms/xcms/video-game-fitness_186_a.html)

C0-435 Defense Centers of Excellence. (2009). *Video games for physical and cognitive fitness*. Retrieved October 20, 2009, from <http://www.dcoe.health.mil/blog/article.aspx?id=1&posted=16>

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# ***Technology in Physical Fitness***

- Section 1: Physical Fitness Equipment***
- Section 2: Online and Software-Based Fitness Tools***
- Section 3: Video Games That Promote Physical Fitness***

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## SECTION 1 PHYSICAL FITNESS EQUIPMENT

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To support and encourage continuous fitness activity, technology provides numerous avenues to record and monitor physical activity. High caloric intake and low physical activity are recognized as key contributors of obesity, diabetes and other chronic health conditions.

Whether you use physical activity devices, online monitoring tools or video games that promote physical fitness, each has benefits to assist the user to achieve a level of fitness. How you monitor your physical activity can vary from using basic to complex equipment or a simple and enjoyable interactive personal computer (PC) program you use alone or with friends.



Let's unlock the information about the different types of equipment available for increasing one's physical activity.

### EXERCISE EQUIPMENT

Machines available include full size equipment, such as:

- treadmills,
- elliptical machines,
- rowing machines, and
- bicycles.

To intensify the workout, most equipment comes with electronic controls and built-in exercise programs that vary speed and intensity over a workout.



60 minutes of exercise burns varying amounts of calories depending on the exercise program. For more information, visit <http://www.health-and-fitness-source.com/burning-calories.html>

## Treadmill



Figure A-1 Treadmill

*Note.* From "Exercise Equipment", 2009, *Smoothfitness*. Retrieved November 6, 2009, from <http://www.smoothfitness.ca/treadmills>

This is the most popular piece of exercise equipment used in North America. The treadmill is the most natural form of exercise as it allows you to walk or run at your own pace.

Machines may have:

- motion control hands-free speed adjustment,
- wireless heart rate control,
- various levels of incline,
- iFit® workout technology,
- iPod® / MP3 connections, and
- LCD flat-screen television.

Treadmills are more versatile for home gyms as some can be folded for storage.

## Elliptical Trainer

The elliptical machine provides exercise workouts similar to combining biking, stair-climbing and cross-country skiing workouts.

This machine provides moderate to intense low-impact workouts for your legs and to a lesser degree, your arms. If the machine has reverse motion, you then exercise your buttock muscles.

This multipurpose machine is gaining popularity.

Machines may have:

- pre-set programs,
- heart rate controlled workout programs,
- varying levels of resistance change automatically,
- allows for forward and reverse motion,
- iPod® / MP3 docking station with speakers, and
- multi-color LCD display.



Figure A-2 Elliptical Trainer

*Note.* From "Exercise Equipment", 2009, *Smoothfitness*. Retrieved November 6, 2009, from <http://www.smoothfitness.ca/ellipticaltrainer>

An elliptical trainer provides:

- low-impact workouts,
- upper-body workouts, and
- lower-body workouts.

An elliptical trainer can not be folded for storage.



For calorie burning workouts, the treadmill and elliptical trainer are your best choices.

### Exercise Bike

Exercise bikes can come with ports may have:

- iFit® workout technology,
- iPod® / MP3 connections,
- heart rate technology, and
- Gamefit™ interactive fitness games.



Exercise bikes have been a popular form of exercise as they are simple to operate. They come with preprogrammed biking routines to provide various exercise workouts.

Figure A-3 Exercise Bike

*Note.* From "Exercise Equipment", 2009, *Smoothfitness*. Retrieved November 6, 2009, from <http://www.smoothfitness.ca/exercisebike>

Some equipment can be plugged into televisions and video games to let you interactively pedal through the visual courses.



A variation to the standard exercise bike is the recumbent bike. It is best suited for individuals with lower back pain. This form of bike allows you to multi-task (take phone calls, read, etc.) during your exercise workout.

## Rowing Machine

A rowing machine allows you to burn calories in a low-impact workout. The areas exercised include:

- arms,
- legs, and
- torso.

Machines can have a built-in PC interface to support software accessories.



Figure A-4 Rowing Machine

*Note.* From Concept Rowing, 2009, *Concept2: The World's Best Rowing Machine*. Retrieved November 12, 2009, from <http://www.concept2.com/us/default.asp>

## PERSONAL DEVICES

Personal devices can be as small as a pedometer, accelerometer and multi-sensor activity tracking devices. The mechanisms can be as basic as counting footsteps to recording steps and the force of the stride while monitoring the heart rate.

### Basic Pedometer

The pedometer is used to count steps while an individual walks or runs during an exercise period. People use this type of equipment for counting the number of steps during a day.

Modern day pedometers can be divided into five categories:

- spring-suspended lever arm with metal-on-metal contact,
- magnetic reed proximity switch,
- pendulum,
- accelerometer, and
- Global positioning system (GPS).



Figure A-5 Pedometer

*Note.* From "Amazon.com", 2009, *SportLine 340 Strider Pedometer: Sports & Outdoors*. Retrieved November 13, 2009, from <http://www.amazon.com/SportLine-SP2795BK-340-Strider-Pedometer/dp/B0006VVRX6>

The pedometer works by pendulum movement as the balanced weight activates to vertical motion which records steps and shows a digital record.

Most pedometers are clipped to the belt to be used during a low-impact exercise such as walking.



10,000 steps a day is the magic number recommended to achieve an active lifestyle.  
–www.physiotherapy.ca

## Pedometer Watches

Pedometer watches come in three different varieties, which include:

- separate sensor to detect your steps and send data to a watch,
- GPS to measure the distance and speed you are travelling. It has a separate sensor. This system does not record the step count, only the distance travelled, and
- watch sensor to detect the arm motion rather than the steps.



Figure A-6 Watch Pedometer

*Note.* From "Which Pedometer Design is Best?", by W. Bumgardner, 2009, *Heart Rate Monitor Pedometer Watch*. Copyright 2009 by W. Bumgardner. Retrieved November 13, 2009, from [http://www.walking.about.com/od/pedometer1/ss/pedometerdesign\\_7htm?p=1](http://www.walking.about.com/od/pedometer1/ss/pedometerdesign_7htm?p=1)

## Accelerometer

Accelerometers are more than a pedometer because they use a precision motion sensor to measure calories burned during physical movement.



Figure A-7 Accelerometer

*Note.* From "thisnext", 2009, *Accelerometer—Measures Calories Burned From Physical Movement*. Retrieved November 13, 2009, from <http://www.thisnext.com/item/75297326/6ECC67A9/Accelerometer-Measures-Calories>

An accelerometer provides a quantitative measurement which counts:

- steps, and
- the force of a person's strides, providing more complex and precise measurements to analysis energy expended.



Did you know you can use your cell phone, iPod® and similar devices to record your exercise data?

List any device(s) you have. \_\_\_\_\_  
\_\_\_\_\_

Advanced pedometers and accelerometers have been incorporated into modern cellular telephones and everyday devices including watches. These require you to stream the data to other sources.

The Nike+iPod® sport kit uses a small shoe sensor to record:

- steps,
- distance,
- time,
- pace, and
- calories expended.

The software is downloaded into an iPod® Touch or iPhone®. This sensor is placed in a special shoe or in your sock.



Figure A-8 Nike + iPod® Sports Kit Sensor

*Note.* From "Apple-Nike+iPod", 2008, *Nike+iPod*. Retrieved November 12, 2009, from <http://www.apple.com/ipod/nike/>



Figure A-9 Nike + iPod® Sports Kit Receiver Attached to iPod® Nano

*Note.* From "Apple-Nike+iPod", 2008, *Nike+iPod*. Retrieved November 12, 2009, from <http://www.apple.com/ipod/nike/>

The iPod® Sports Kit sensor works with an iPod® Nano with a wireless receiver attached to the iPod® Nano. This receiver records the same functions as the iPhone® and iPod® Touch®.

You can download pedometer software to your iPhone®. The built-in accelerometer counts your steps.

The Nokia Sports® phone is more advanced in that it will record:

- steps,
- distance,
- pace, and
- calories expended.



More devices are being created to allow people to exercise and record their progress on electronic devices. List other devices similar to those presented that you have seen that have similar functions?

_____	_____
_____	_____
_____	_____

### **MULTI-SENSOR ACTIVITY TRACKING DEVICES**

These devices record physical activities. Sensors are placed on various parts of the body and are exclusive to record different physiological measurements to provide a record of physical activities.

#### **SenseWear Armband**

The armband is a multi-sensor device, which is part of weight measurement and body monitoring solutions. It measures:

- skin temperature;
- physical movement;
- skin impedance, which reflects water content on body surface and constriction or dilation of vascular surface; and
- the rate at which heat is dissipated from the body.

This data can be used to calculate and report energy expenditure and physical activity.

#### **BioTrainer Activity Monitor**

This accelerometer-based device records both vertical and horizontal physical movement, recording the duration, intensity and frequency of physical activity.

#### **Heart Rate Monitor**



Figure A-10 Heart Rate Belt

*Note.* From "Vernier", 2009, *Exercise Heart Rate Monitor*. Retrieved November 16, 2009, from <http://www.vernier.com/probes/her-bta.html>

The exercise heart rate belt is used for an active individual to monitor the heart rate during exercise. The belt has a sensor but is not a stand alone device. The wireless transmitter sends information to a receiver plugged into the interface box on the machine being used.



It is important to collect activity data over multiple days and even weeks to get an accurate record of your exercise program and results.



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## SECTION 2

### ONLINE AND SOFTWARE-BASED FITNESS TOOLS

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If you are planning to document and analyze your daily physical activity, first check the device you are using for online support or software compatibility with your PC.

Most equipment can be linked to online or software programs which allow you to monitor your exercise program on a PC. The end result of the exercise program depends on the program you are using. The programs come in various workouts for all fitness levels and goals including:

- cardio,
- strength training,
- circuit training,
- fitness journals, and
- activity calorie calculators.

Many exercise machines have built-in workout technology. The level of exercise can be controlled by the machine depending on the program selected during the workout. A treadmill for example, has various levels of incline and the exercise bike has varying tension settings to simulate hills.



Figure A-11 Treadmill

*Note.* From "Exercise Equipment", 2009, *Smoothfitness*. Retrieved November 6, 2009, from <http://www.smoothfitness.ca/treadmills>

Many people use music to assist them during their fitness program. Using various types of music, a faster or slower pace can be maintained. When using equipment, an iPod® or MP3 can be connected to the machine with built-in speakers or just attached by an arm strap and headphones.



Fitness music programs can be obtained from online suppliers such as iTunes® or cadencerevolution.com. Other sources can be found online.



Want to learn more?

Visit [www.cadencerevolution.com/index.php/2009/11/weekly-workout-142/](http://www.cadencerevolution.com/index.php/2009/11/weekly-workout-142/). You will see a cycling workout with music.

Machines which use the iFit® workout technology, provide more variations of fitness workouts. Equipment comes with the port to insert the program required. The SD card with the program can be purchased from various companies. While a personal trainer verbally coaches you, the card controls the machine, to include adjusting:

- the speed and incline of the treadmill,
- the resistance of the elliptical, and
- the resistance of the bicycle.



Figure A-11 Card Reader

*Note.* From "iFit", 2009, *ifit.com*.—*Workout Sample Downloads*. Retrieved November 16, 2009, from <http://www.ifit.com/workouts/downloads>

Most software programs, including iFitness®, provide prepared workouts for beginners and more experienced individuals but you can create your own workout.

Varying routines are available to assist with:

- weight loss,
- strength,
- ab definition,
- golf program, or
- others.

The program logs, graphs and tracks progress. This type of program includes screens showing images of people doing over 230 exercises and includes full text instructions. Some programs include videos to show proper exercise execution. Timers are included to monitor the exercise and rest timings.

To track and store the exercise data, these types of programs include backup and restoration to the server.

Fitness programs are available for most equipment that have a built-in PC interface. This program can be ordered from companies and downloaded to a PC online or from a DVD. The range of data provided is similar to the SD card format. With video and audio capability, a personal trainer guides you through varying fitness programs.



Some commercially available software allows you to exercise in distance countries. Have you wanted:

- to walk,
- to run,
- to bike up the Alps; or
- to row:
  - distance waterways,
  - against others, or
  - with Olympic medalists?



***Did you know?***

Apps are program applications available from online resources such as iStore®.

The opportunity for personal fitness training continues to grow with the development of more Apps for the personal devices and DVDs. With continued development, the consumer options and needs provide more choices.

With a simple search on the Internet, numerous programs are available online. Whether you want to store the information with the organization or get assistance with your fitness activity, this information is found online.


Online services include:

- exercise workout online,
- workout training,
- fitness training,
- weight loss training,
- calories burned training,
- fitness calculator, and
- diet tracker.




The program you want to use may vary from those discussed here. Review fitness Apps online and choose the program best suited for your requirements. Some workouts are free and some require you to purchase the program.

**SECTION 3**  
**VIDEO GAMES THAT PROMOTE PHYSICAL FITNESS**

	<p>Do you play video games? What are some of your favourite video games?</p> <p>_____</p> <p>_____</p> <p>_____</p>
---	---


Computer games have been around for some time. From the comfort of a chair or couch, individuals have been able to play against a PC in various single player or team sports or adventure activities. However, little exertion of energy is involved in standard arcade games.

The newer generation of wireless-based computer platforms provides more elaborate and realistic games and activities. Computer games, like TV shows, come in various ratings, depending on the age of the user.

	<p>Do you know the rating of your computer games? Mark the rating (s) appropriate for you and then rate the games you listed at the start of this section.</p>
EC	Early childhood, suitable for children age 3 and over. _____
E	Everyone, suitable for children older than 6 and may contain a minimal amount of cartoon violence and / or mild language. _____
E 10+	Everyone 10+, suitable for children over 10 and may contain fantasy violence and increased mild language and some suggestive themes. _____
T	Teen, suitable for teenagers and may contain some blood and violence, crude humour, strong language and simulated gambling. _____
M	Mature, not meant for children and should only be played by people older than 17. Contain greater amounts of violence, blood and gore, sexual content and stronger language. _____
AO	Adult only and contains prolonged scenes of violence and / or sex. _____

A system that makes advances using educational, physical and cognitive fitness games is being introduced into business and organizations. Although more research and development is needed to focus on using video games to provide specific cognitive, motor and educational goals, some off the shelf programs have been introduced and show progress in these areas.

With opportunities to de-stress using activity promoting computer games during lunch and work breaks, workers are showing more productivity and creativity. The gaming system has the user moving and exercising.

	<p>By combining video games with exercise, young people may be more active.</p>
---	---

## GAMING PLATFORMS

The Nintendo Wii™ has provided individuals with the opportunity to exercise with its use of interactive exergames. Wii Sports™ and Wii Fit™ have the player actively participating in sports as if playing real games including:

- boxing,
- tennis,
- baseball,
- golf,
- yoga,
- strength training,
  - push-ups,
  - stretches, and
  - ab exercises;
- aerobatics, and
- balance games,
  - skiing,
  - snowboard, and
  - walking a tightrope.

The intensity of the fitness workout depends on the game level achieved. Beginners start with the strength training exercise and graduate to the more demanding cardio exercises which include:

- running on a track;
- punching targets / a heavy bag;
- inline skating with jumps; and
- playing tennis.



Wii Fit™ shows your body age. As you progress, the body age and the chronological age should synchronize and you may even show a younger age.

As a motivator, Wii™ has the player create their own avatar. The avatar has customized hair colour, face shape, eye colour and more. The body shape represents the player's own. If the balance board is being used, it measures the weight and the player enters their own height. The game calculates their body mass index (BMI) and as weight is lost, the game adjusts the body shape.



Business executives, who use gaming platforms for exercise at work, create their own avatar for the program being used. Do you have your avatar created?

The PlayStation Xbox™ and Wii™ have young people up and moving to Dance Dance Revolution. The individuals move their feet as required on the dance pad while watching the actions of a character on a screen.

Stationary bikes have been connected to gaming systems such as PlayStation2™ requiring the player to peddle and stir with the handles to activate a car in the game.



Does activity promoting computer games make a difference in the energy (kj) expended? A study made by the Research Institute for Sport and Exercise Sciences in Liverpool, England, found the type of activity completed over a 60-minute period showed varying results. Baseline resting energy expenditure is 300 kj (72 cal).

Sports and Activities

- Sitting playing board games—400 kj (96 cal)
- bowling—800 kj (191 cal)
- tennis (doubles)—1330 kj (318 cal)
- boxing (punching bag)—1600 kj (382 cal)
- boxing (sparring)—2410 kj (575 cal)

Gaming Sports and Activities

- Xbox 360™ games—450 kj (105 cal)
- Wii Sports™ bowling—700 kj (167 cal)
- Wii Sports™ tennis—750 kj (179 cal)
- Wii Sports™ boxing—730 kj (174 cal)



The energy expended playing gaming sports and activities is noticeably lower than participating in the real activity.

The enhanced interactive effects of active gaming produces varying degrees of energy expended. The more active and fit an individual is, the more progress and advancement to the next level.



Many corps and squadrons are purchasing gaming consoles which use the active gaming platforms. Does your corps offer any type of gaming programs? If so, describe the games and purpose and if not, what would you like to see at your corps?

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## CONCLUSION

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As you move to future education and / or work from organized activities provided by cadet training, the planning and scheduling of leisure time for fitness activities becomes your responsibility. With the advancement of technology and its use in the applications reviewed in this self study package, motivation and technical assistance is available for the individual wishing to continue their fitness activities.

Whether the individual uses exercise equipment, small devices, online and software-based fitness tools or interactive exergames, it is the individual's responsibility to monitor and participate in their own program. Individuals can use the services of a fitness gym, YMCA, and personal gym to access numerous exercise equipment. Something as simple as walking and running using the smaller devices can be completed routinely without membership fees to a gym.

As you progress into future training and education, the benefits of continued fitness activity will assist you to maintain a healthy lifestyle.



Congratulations, you have completed your self study package on EO C504.01 (Examine the Use of Technology in Physical Fitness Activities). Complete the following exercise and hand your completed package to the Training Officer / Course Officer who will record your completion in your Master Cadet logbook.

**FINAL EXERCISE**

What is your fitness activity? Do you use any device or program discussed in this self study package? Mark an X in the box beside the equipment or program you use. If you do not presently use any of these pieces of equipment, mark an X in those boxes that interest you.

	<u>Use</u>	<u>Interest</u>
	<input type="checkbox"/>	<input type="checkbox"/>

Figure A-12 Treadmill

*Note.* From "Exercise Equipment", 2009, *Smoothfitness*. Retrieved November 6, 2009, from <http://www.smoothfitness.ca/treadmills>


	<input type="checkbox"/>	<input type="checkbox"/>
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Figure A-13 Elliptical Trainer

*Note.* From "Exercise Equipment", 2009, *Smoothfitness*. Retrieved November 6, 2009, from <http://www.smoothfitness.ca/ellipticaltrainer>



Use

Interest



Figure A-14 Exercise Bike

*Note.* From "Exercise Equipment", 2009, *Smoothfitness*. Retrieved November 6, 2009, from <http://www.smoothfitness.ca/exercisebike>



Figure A-15 Rowing Machine

*Note.* From Concept Rowing, 2009, *Concept2: The World's Best Rowing Machine*. Retrieved November 12, 2009, from <http://www.concept2.com/us/default.asp>

Use

Interest



Figure A-16 Pedometer

Note. From "Amazon.com", 2009, *SportLine 340 Strider Pedometer: Sports & Outdoors*. Retrieved November 13, 2009, from <http://www.amazon.com/SportLine-SP2795BK-340-Strider-Pedometer/dp/B0006VWRX6>



Figure A-17 Watch Pedometer

Note. From "Which Pedometer Design is Best?", by W. Bumgardner, 2009, *Heart Rate Monitor Pedometer Watch*. Copyright 2009 by W. Bumgardner. Retrieved November 13, 2009, from [http://www.walking.about.com/od/pedometer1/ss/pedometerdesign\\_7htm?p=1](http://www.walking.about.com/od/pedometer1/ss/pedometerdesign_7htm?p=1)



Use

Interest

Figure A-18 Accelerometer

*Note.* From "thisnext", 2009, *Accelerometer—Measures Calories Burned From Physical Movement*. Retrieved November 13, 2009, from <http://www.thisnext.com/item/75297326/6ECC67A9/Accelerometer-Measures-Calories>



Figure A-19 Nike + iPod® Sports Kit Sensor

*Note.* From "Apple-Nike+iPod", 2008, *Nike+iPod*. Retrieved November 12, 2009, from <http://www.apple.com/ipod/nike/>



Figure A-20 Nintendo Wii™ Gaming Platform

Note. From "Sears", 2009, *Nintendo Wii Game System Console*. Retrieved November 12, 2009, from <http://www.sears.ca/product/wii-8482-bundle/57542790?ptag=1>