



PDHPE

HSC Enrichment
Days

*Factors Affecting
Performance*



“How does training affect performance?”

Student Learn About

- Principles of training
 - Progressive overload
 - Specificity
 - Reversibility
 - Variety
 - Training thresholds
 - Warm up and cool down

Student Learn To

- Analyse how the principles of training can be applies to both aerobic and resistance training

Analyse: “Identify components and the relationship between them; draw out and relate implications”

Activity One

Activity One: Definition and Acronym

Read the definition of “Analyse” and rewrite it in your own words so that it makes sense to you.

Create an acronym to remember the Principles of Training. For example;

Poo Spreads Rapidly When Taking Vitamins

Or

RSVP To Wendy

P _____

S _____

R _____

V _____

T _____

W _____



Principles of training

<https://www.youtube.com/watch?v=cA25TNx2PNo>



Activity Two

Activity Two: You Tube Clip

Watch the You Tube Clip and answer the questions below;

1. How many Training Principles are there?

2. Why is it important to gradually increase an athlete's workload?

3. What 3 things must training be specific to?

4. The "detraining effect" is also known as what?

5. Why is variety important?

6. What is a training zone?

7. Why is cool down important?

Activity Three: Principles of Training Table

Complete the following table by providing a definition of each of the principles and an example of how each may be applied to aerobic and resistance training.

Principle	Definition	Aerobic example	Resistance example
Progressive overload			
Specificity			

Reversibility			
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Principle	Definition	Aerobic Example	Resistance Example
Variety			
Training Thresholds			

Warm up/Cool
down



Training Thresholds



<https://obstaclecourse.training/fundamentals-of-heart-rate-training/>

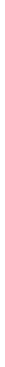
Activity Four

Activity Four: Calculating Maximum Heart Rate and Graphing

For an athlete to target a particular energy system in training, they must be exercising within a particular training zone. This is known as a

training threshold and is expressed as a percentage of an athlete's maximum heart rate.

a) Using the information in the slide above, draw a graph that represents the two training zones (aerobic and anaerobic)



b) Using the equation $MHR = 220 - \text{age}$, calculate your maximum heart rate.

MHR = _____

c) Using the equation $MHR \div 100 \times \%$, calculate your target heart rate zone for aerobic training and anaerobic training

For example; a 20 year old's minimum heart rate for aerobic benefits would be

$$220 - 20 = \text{MHR of } 200\text{bpm}$$

$$220/100 = 2.2 \times 60 = 132\text{bpm minimum}$$

Target HR zone for Aerobic gains _____ to _____

Target HR zone for Anaerobic gains _____ to _____

Activity Five: Sample Training Programs

In the Student Learn To of the syllabus, it is stipulated that students must be able to analyse how the principles of training apply to both aerobic and resistance training programs.

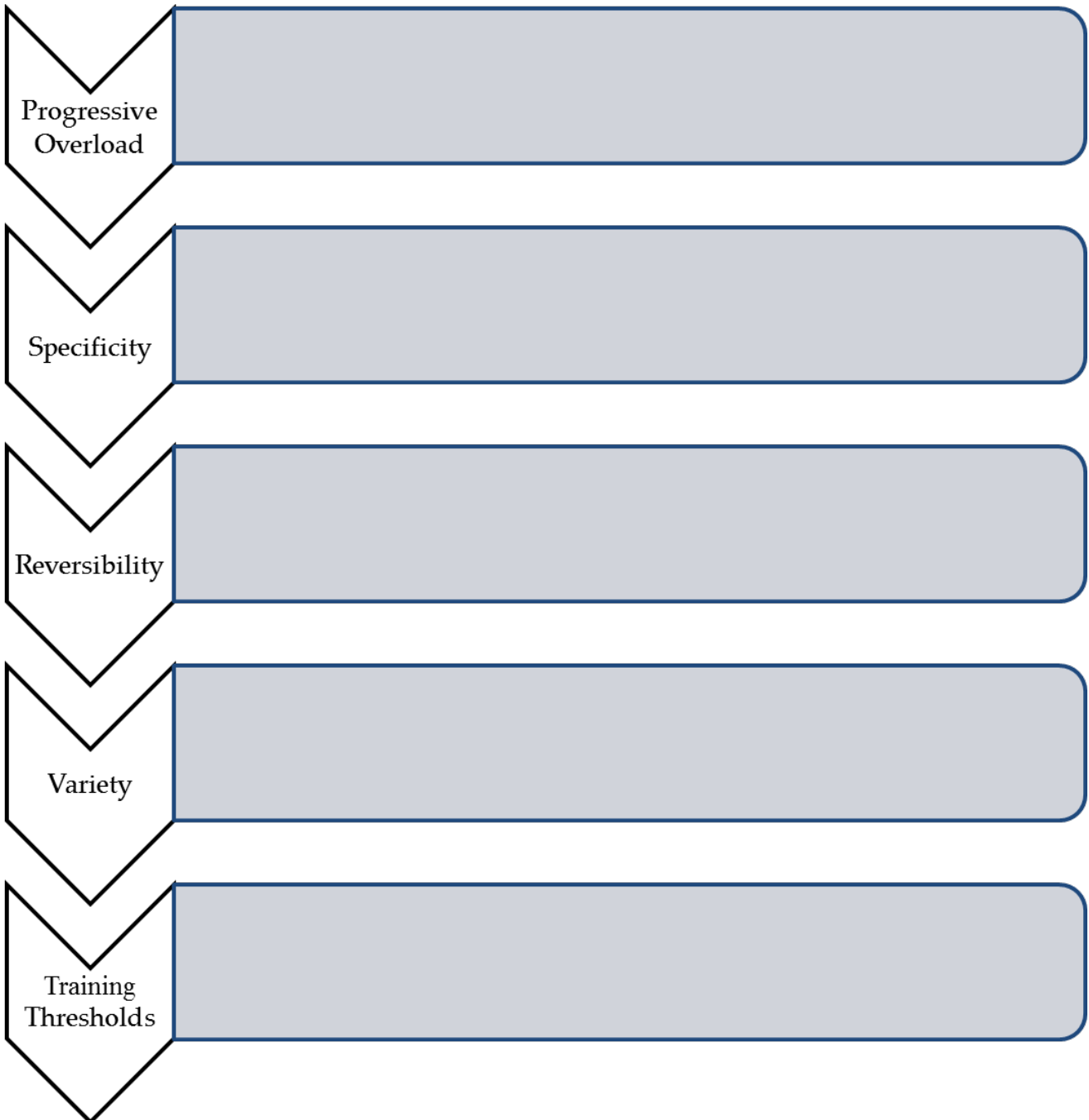
Students are to read the following two programs and highlight examples of where the principles of training have been applied.

Write the examples for each in the diagrams that follow.

Resistance Training

Sample Loading Pattern Over a 6-Week Phase

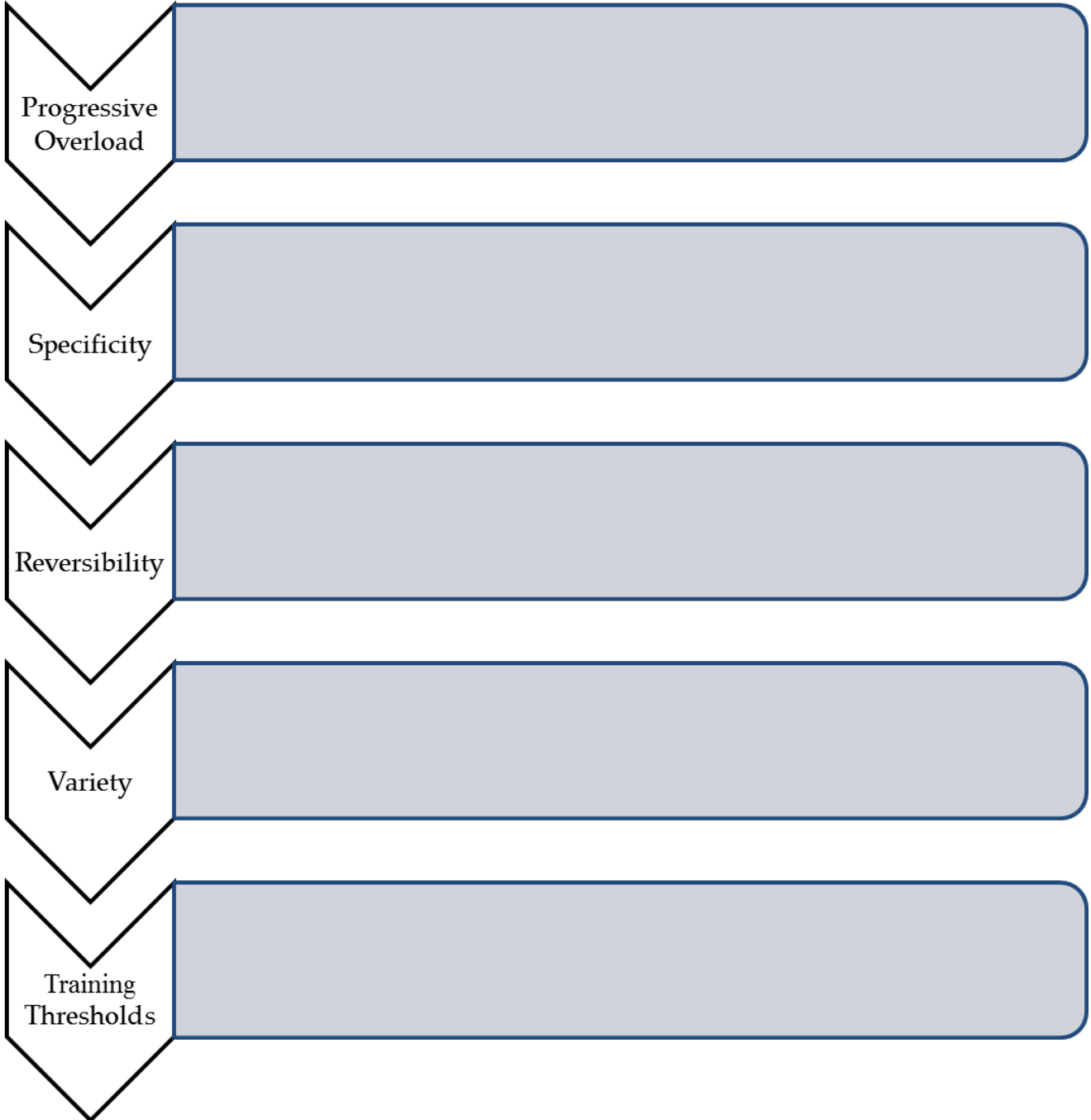
Exercise	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
Half Squats	70% 1-RM 3sets x 8reps	80% 3 x 6	90% 3 x 3	70% 3 x 8	90% 3 x 3	95% 3 x 2
Hang Cleans	70% 1-RM 3sets x 8reps	80% 3 x 6	90% 3 x 3	70% 3 x 8	90% 3 x 3	95% 3 x 2
Bench Presses	70% 1-RM 3sets x 8reps	80% 3 x 6	90% 3 x 3	70% 3 x 8	90% 3 x 3	95% 3 x 2
Dead Lifts	60% 1-RM 3sets x 10reps	60% 3 x 10	70% 3 x 8	60% 3 x 10	70% 3 x 8	70% 3 x 8
Military Presses	70% 1-RM 3sets x 8reps	80% 3 x 6	90% 3 x 3	70% 3 x 8	90% 3 x 3	95% 3 x 2
Lat Pull Downs	70% 1-RM 3sets x 8reps	80% 3 x 6	90% 3 x 3	70% 3 x 8	90% 3 x 3	95% 3 x 2
Crunches	3sets x 15reps	3 x 20	3 x 20	3 x 15	3 x 20	3 x 25



a) What should be included as part of a warm up and cool down session for this program?

Aerobic Training

Marathon Training Schedule - Intermediate							
Week	Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	Recovery	Short - 3mile	Interval 2 x 1600m	Short - 3mile Strength	Rest	Short - 4mile	Long - 8mile
2	Recovery	Short - 3mile	Interval 2 x 1600m	Short - 3mile Strength	Rest	Short - 3mile	Long - 10mile
3	Recovery	Short - 3mile strength	Rest	Short - 3mile Strength	Rest	Short - 3mile Race pace	Long - 6mile
4	Recovery	Short - 4mile	Interval 4 x 800m	Short - 4mile Strength	Rest	Short - 4mile Race Pace	Long - 12mile
5	Recovery	Short - 5mile	Interval 4 x 800m	Short - 4mile Strength	Rest	Short - 4mile Race Pace	Long - 14mile
6	Recovery	Short - 3mile strength	Rest	Short - 3mile Strength	Rest	Short - 3mile Race Pace	Long - 8mile
7	Recovery	Short - 5mile	Interval 5 x 800m	Short - 5mile Strength	Rest	Short - 4mile Race Pace	Long - 16mile
8	Recovery	Short - 5mile	Interval 5 x 800m	Short - 5mile Strength	Rest	Short - 4mile Race Pace	Long - 18mile
9	Recovery	Short - 5mile	Rest	Short - 3mile Strength	Rest	Short - 4mile Race Pace	Long 10 mile
10	Recovery	Short - 5mile	Interval 6 x 800m	Short - 5mile Strength	Rest	Short - 3mile Race Pace	Long - 20mile
11	Recovery	Short - 3mile	Rest	Short - 4mile	Rest	Short - 4mile Race Pace	Long - 8mile
12	Recovery	Short - 5mile	Interval 6 x 800m	Short - 5mile Strength	Rest	Short - 4mile Race Pace	Long - 20mile
13	Recovery	Short - 3mile	Rest	Short - 5mile	Rest	Short - 4mile Race Pace	Long - 12mile
14	Recovery	Short - 5mile	Interval 6 x 800m	Short - 5mile Strength	Rest	Short - 3mile Race Pace	Long - 20mile
15	Recovery	Short - 3mile	Rest	Short - 4mile	Rest	Short - 4mile Race Pace	Long - 12mile
16	Recovery	Short - 5mile	Interval 4 x 800m	Short - 5mile Strength	Rest	Short - 4mile Race Pace	Long - 10mile
17	Recovery	Short - 5mile Strength	Short - 3mile	Short - 5mile Race Pace	Rest	Short - 5mile	Long - 8mile
18	Recovery	Short - 4mile	Rest	Short - 3mile	Rest	Rest	Race



b) What should be included as part of a warm up and cool down session for this program?



Implications

*"The conclusion that can be drawn from something.
May be positive or negative"*

Principle of specificity (define) is applied to an aerobic training program e.g long distance running in training for a marathon.

Component



Appropriate muscle groups and energy systems are therefore being targeted e.g large muscle groups in the entire body and the aerobic energy system (65-85% MHR)

Relationship



Desired physiological effects are achieved e.g. athlete increases their Oxygen uptake, haemoglobin levels and cardiac output

Implication???

Activity Six

Activity Six: Brainstorm Activity

Brainstorm the implications of applying the principles of training to an exercise program.

e.g. specific outcomes and goals are achieved

Take Home Activities

The following activities can be done at home as part of your study in preparation for the HSC:

Activity 1:

Complete the following past HSC question within a 12 minute time limit. Be sure to plan your response first;

“ How can THREE principles of training be applied to improve strength? Provide examples”

(6 Marks)

Activity 2:

Design a 6 week aerobic training program for an amateur triathlete. The program must demonstrate all 6 principles of training.

Activity 3:

Go to the following URL and watch the slideshows. Attempt each of the questions throughout;

<http://www.slideshare.net/clarindabrown/principles-of-training-16411627>

