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Online Orienteering Guide for Teachers

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Abstract

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ABSTRACT

The primary objective of this thesis is to provide information on all basic orienteering skills for school lessons and orienteering clubs. It also gives an overview about what has to be considered when working with students in international environments, as we wrote the product part both in English and in Finnish language.

The thesis is product oriented and split into the theoretical part and the product itself, that for us is a website. Theoretical part is split into five sections: introduction, technical skills, physical skills, cognitive skills, and training sessions.

The website (www.schoolorienteering.com) contains three sections about mapping, equipment, and activities. The third section is divided in four parts with all the exercises and their examples. In the website there is also a suggestion for typical progressions for the students development, provided to help teachers and instructors.

It is important to consider that there is a lot of material online or in books but the orienteering community doesn't have yet a database with all the activities, that is why we decided to create it.

The Thesis has been made in cooperation with the Finnish club Lahden Suunnistajat -37 and Länsiharju Primary School in Lahti, and many examples come from past work with the following Italian, Finnish and Australian orienteering clubs and primary schools.

Keywords
Orienteering, online guide, school, training, website, physical education

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1 Introduction

Orienteering began in the late 19th century in Sweden. In the beginning it was used only as an outdoor activity and training for the army. The term orienteering was born in 1886 at the Karlberg Military Academy, and it meant finding the way in an unknown terrain only with the use of a map and a compass. The first official orienteering competition was held in Stockholm in May 1893, but it was intended only for militaries. Idrettsklubben Tjalve organized the world's first general orienteering competition in Nordmark, Norway in October 1897. That was the first orienteering competition which was held for civilians as well. (Svenska Orienteringsförbundet, 2017.)

After that moment, orienteering began to become popular throughout the world. First it spread in the Nordic countries; later to the whole of Europe and then to the rest of the world. At a congress held in May 1961 in Copenhagen, Denmark, the International Orienteering Federation (IOF) was established by 10 founding members: Bulgaria, Czechoslovakia, Denmark, Federal Republic of Germany, Finland, German Democratic Republic, Hungary, Norway, Sweden, and Switzerland. (The International Orienteering Federation, 2020a.)

Nowadays, the IOF has member federations from all continents. The total number of member federations is 76. (International Orienteering Federation, 2020b.)

Orienteering consists of map reading skill, compass bearing skill, brain work and physical skills. Finding a way through unknown terrain by using a map and compass involves a lot of cognitive processes for example planning, thinking, remembering, recognition, observing, decision making, problem solving. (Johansen, 1997.)

Orienteering is suitable for all ages and nowadays orienteering has gained popularity especially as a hobby for families. This and the other facts that were previously mentioned are some examples of the reasons why orienteering has such a significant position in school curriculum.

This thesis has been produced to provide an online orienteering guide for teachers. In the thesis, we explain how the product was created and what implications are for the development of school orienteering. In many schools the teachers have the same difficulties in planning and organizing motivating school orienteering lessons. Typically, maps are old and not updated. Another challenge is also teachers' own orienteering skills and understanding new orienteering styles, but the most typical thing is lack of imagination and courage to try something new and totally different. Of course, it should be noted that lesson planning takes time, so it is easier to implement a familiar format.

The online orienteering guide for teachers provides instructions for a successful lesson planning. The guide's main idea is to offer simple instructions for new types of orienteering training and lessons for the students. The main target group is naturally teachers, but the guide provides a good basis also to orienteering coaches and instructors. There is a lot of information about orienteering on the internet and in books, but the guide has strived to put it all together, and add also our own knowledge and experience.

The activities in the guide are separated in four different requirement levels: understanding, familiarization, navigation, competition. Every activity has detailed instruction: age or target group, location, duration of training, aim, description, equipment, preparation, implementation and variations. The guide will also be updated throughout the years; there will be more activities and variations in the future. Now there are already over 40 different kinds of exercises. The language of the guide is now English and Finnish, and later it will be translated in other languages such as Swedish and Italian.

Like previously said, lack of knowledge or maps not up to date are the biggest problem in many schools. We have tried to combine simple instructions for map making and offer ways how to get or order a new school map. The guide also provides information on purchasing equipment for orienteering. Lastly, there are available different kinds of ready-made lesson plans for different ages and skill levels.

Both of us have started orienteering at a very early age. Orienteering has changed since those days, and especially school orienteering needs updating and more knowledge. The most important goal for us is to give tips, positive energy and experience for teachers to plan motivating physical education lessons in the school environment or in the outdoors.

2 Analysis of orienteering

Orienteering is an outdoor activity and sport. The aim of orienteering is navigating through an unknown terrain between specific checkpoints by using a map and possibly a compass. Each control is marked on the map with a purple and they are connected with lines. On the terrain controls locations are normally marked by white-and-orange flags. Controls are also numbered in order on the map, depending on the order that they have to be visited. (Orienteering USA 2020.)

Orienteering develops navigation skills and map-reading skills, but it consists mainly in technical and physical skills. It also consists of a lot of decision making situations and, especially during a competition, an orienteer is under condition stress. Orienteering is a sport for everyone, from competitive runners to beginners, for the whole family to older people.

Guzmán, Pablos & Pablos (2008) supported with their research the conclusion of Kolb, Sobotka & Werner (1987), in which the orienteering skills together with racing abilities are the most relevant performance's variables in this sport. Their results also confirmed that the specific techniques suggested by Seiler (1985), Ottosson (1986), and Mínguez (2002): map reading, symbol knowledge, and map-terrain-map identification; are important variables in predicting the performance level. (Guzmán et al., 2008; Kolb et al., 1987; Seiler 1985; Ottosson 1986; Mínguez, 2002.)

2.1 Technical skills

In this chapter we will open up the basic technical skills of orienteering. Basic technical skills of orienteering are understanding the map and its symbols, understanding the terrain and its features, orienting the map, using the compass, judging and estimating distances, equipment handling and operations at the checkpoint. (Hytönen 2018, 40.) Operations at the control points are included in the equipment handling paragraph and also in the route choice and control picking paragraph.

Each of these basic technical skills goes hand in hand during an orienteering performance. To be able to find your way from control to control an orienteer needs to combine most of these basic technical skills simultaneously. There is no need to use these skills all the time, in fact the most important thing is to understand when and where to use each one. (Todd D., 2020.)

2.1.1 Understanding the map and its symbols

Understanding and interpreting the map is the first basic orienteering skill. A beginner should understand what an orienteering map consists of. Without learning the symbols and understanding the map is difficult to start developing the other technical skills.

The map is basically the representation of the terrain from a bird's eye view. Maps have been drawn on a larger scale for easier interpretation and reading. The scale refers to the ratio of the terrain to the map. For example, 1:10.000 map scale means that one centimeter on the map is 100 meters on the terrain. The most common map scales are 1:15.000, 1:10.000, 1:5.000, 1:4.000.
(Hytönen 2018, 27; Hernelahti, Lakanen & Savolainen 2009, 38-39.)

School yards are usually quite small and they contain a lot of playground equipment, courts and other special features. That is why school maps have to be made minimum at a 1:4000 scale or larger. A larger scale makes it easier for the map maker to do more accurate maps. It also helps beginners to detect all important objects from the familiar terrain. Orienteering maps consist of a lot of different kinds of colors, symbols, lines and text marks. Orienteering maps are made by using seven different standard colors: black, blue, brown, green, grey, yellow and white, plus purple for course setting.

- Black and grey are used for most man-made objects (buildings, walls, fences), including rocks and cliffs, paths and roads.
- Brown is basically used only for landforms: contours, earth bank, pits, hills, ditches and depressions.
- Blue is used for water features like a lake, pond, stream and well.
- Green is used for all vegetation features.
- Yellow is used for open areas, such as fields and clearings.
- White color on the map symbolizes the clear forest where you can easily run through.
- Purple is used for course and course related information.

Figure 1. The main colours of an orienteering map.

Understanding symbols is the next step for the interpretation of the map. Understanding symbols, identifying and locating them on the terrain is one of the biggest things of map understanding. Orienteering symbols have standards for different kinds of terrain types and maps; official competition maps need to follow the International Orienteering Federation guidelines and specifications, while school maps and open orienteering competition maps can use some different symbol sets. (International Orienteering Federation, 2020c.)

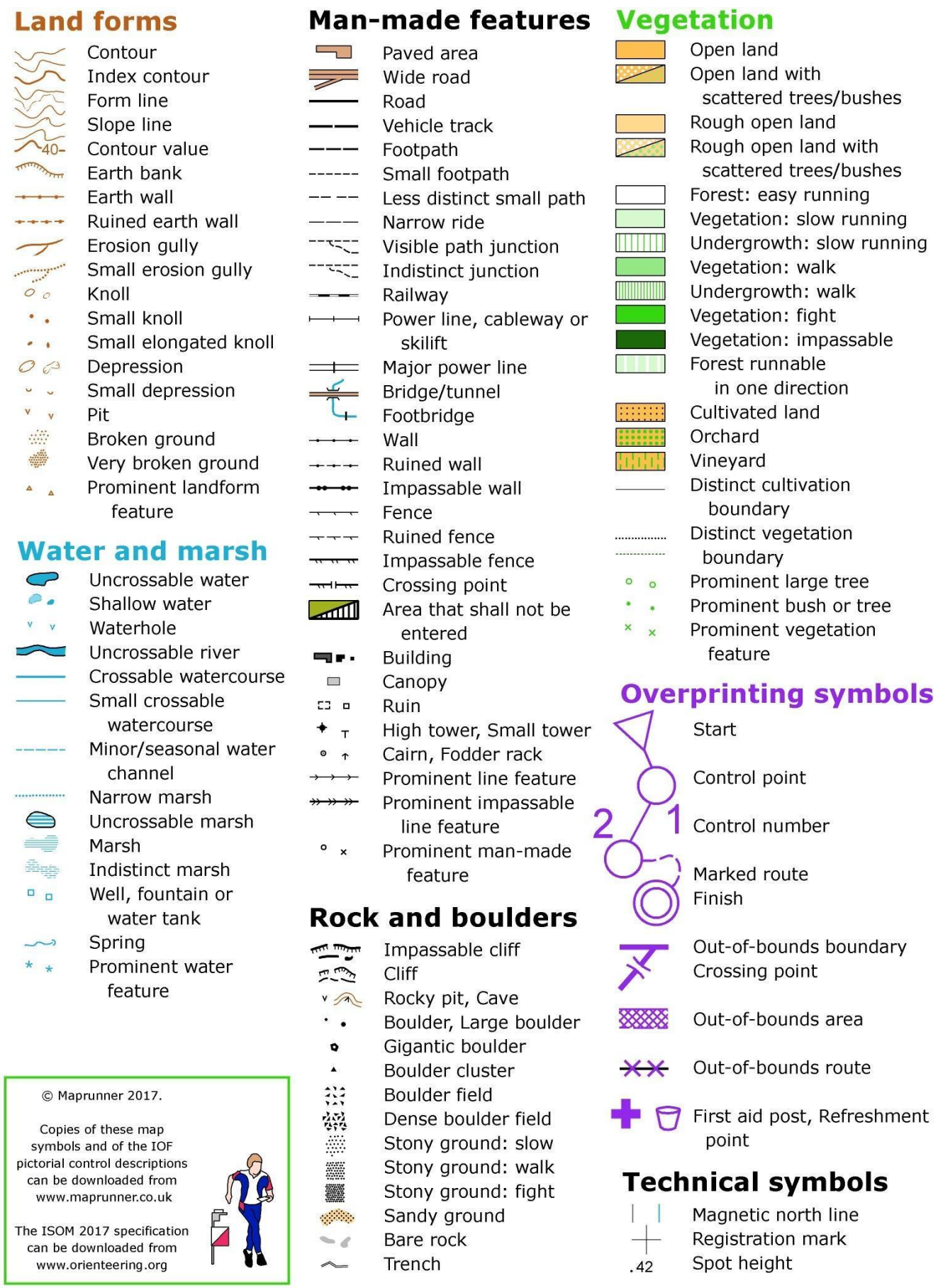

Figure 2. Orienteering ISOM 2017 symbol set. (Jekyll & Minimal Mistakes, 2017.)

2.1.2 Understanding the terrain and its features

Map understanding and terrain / feature understanding go hand in hand. Understanding the terrain basically means identifying and locating basic features visible on the terrain and detecting them on the map. It could consist for example in identifying man-made and unusual objects, locate water objects on the map, understand contours (the top of a hill or the bottom of a depression).
(Orienteering Canada 2016.)

While understanding and observing contours, paths and runnability of the terrain from the map, orienteers visualize the so-called “map image” in their mind. This map image visualization helps to anticipate what to expect while moving in the terrain. (Vartiainen et al. 1994, 3-7.)

Vartiainen et al. (1994, 3-7) defines that clear and visible features are more important than individual objects for observing and visualizing map images. Savolainen et al (2009, 70) and Kärkkäinen & Pääkkönen (1986, 50) agree with it. (Vartiainen et al. 1994, 3-9; Kärkkäinen & Pääkkönen 1986, 50.)

In other words, a well-made observing and visualized map image gives opportunity to think further ahead. Observing clear and relevant features is important especially for simplifying the map, this way is easier for an orienteer to move on the terrain otherwise it would be time consuming to read and detect all the information that is included on the map. (Hytönen 2018, 178-179.)

2.1.3 Orienting the map

Orienting the map means comparing the map image with clear objects and symbols to the surrounding terrain. Understanding and the ability to orient the map by comparing terrain and map helps a lot in locating where you are. (Tule rasteille 2020.) Hytönen (2018, 38) adds that map orientation can be done by comparing maps to the terrain or using a compass. (Hytönen 2018, 38.)

The main idea is to orient the map in the correct way in relation to the terrain and its features. Correctly oriented maps give a good premise to start moving to the right direction. A map is correctly oriented when the objects on it are fitting those that are on the terrain. If you are standing with a compass looking north, the objects on your right should be on the east side of the map and vice versa. The map should stay oriented all the time so that the north lines on it are always in the correct direction. The ‘north’ of the map can be recognized also from the text on the map. The text is always written in a north-south direction. Everywhen there is a change of direction, the map should be turned to be again correctly oriented. (Tule rasteille, 2020; Hytönen 2018, 37-38; Kärkkäinen & Pääkkönen 1986, 48.)

Folding the map makes it smaller and so handling and orienting become easier. (Hytönen 2018, 38; Kärkkäinen & Pääkkönen 1986, 48.) However, Kärkkäinen & Pääkkönen (1986, 48) reminds that map folding must be done carefully and thoughtfully so that nothing essential does not hidden. Especially in a terrain where there are a lot of paths and contours that require more attention. (Kärkkäinen & Pääkkönen 1986, 48.)

Holding and moving the thumb on the map in your own position relative to the terrain makes it easier to keep the map oriented, especially while moving. This way there is no need to relocate your own position every time when reading the map. (Hytönen 2018, 38; Hernelahti et al., 2009, 69.)

Hytönen (2018, 39) highlighted that it is good to practice the thumbing method already in the beginning of the career. In fact, we are using the term “Thumbing the map” in the online guidebook. (Hytönen 2018, 39.)

2.1.4 Using the compass

Using the compass is a well-known skill in orienteering. The main idea of using a compass is to orientate the map correctly. Using the compass makes it easier to orientate the map and to maintain it in the correct direction. The map is correctly oriented when the ‘map north’ is facing the same direction as the north arrow of the compass; this arrow is normally marked in red, while the arrow pointing south is coloured in white. (Tule rasteille 2020.)

The compass can be very useful for example when leaving a checkpoint and the map doesn’t give any clear and visible object or feature. Is also good to check the compass while moving, especially in that kind of terrain where there is not any clear object to follow. These kinds of places are also called “empty areas”. (Vartiainen et al. 1994, 3-34.)

However, using the compass does not eliminate the fact that understanding and interpreting the map is the alpha and omega of orienteering. That is why compass skills are not so important for beginners and for school orienteering.

2.1.5 Route choice and control picking

Route choice is part of the basic ideology of orienteering. Without a planned route there is always a chance to end up running in some difficult terrain and losing precious time. (Hytönen 2018, 45.)

It is important to remember to plan and make the route choice at every control. The importance of taking a route choice is particularly emphasized for longer legs. On longer legs, the plan can be

divided into intermediate sections. Splitting into shorter sections makes it easier to think and progress the whole leg. (Hytönen 2018, 45.) Splitting legs makes orienteering work also much smoother.

We can say that there is no right or wrong route choice, but there are always faster and slower ones. Each orienteer has its own strengths and weaknesses. Therefore, route choices are often based on these as well. The route choice selection for every person is based on technical skills, physical strengths and terrain type. The best route choice is different for each person. (Hytönen 2018, 49.)

When choosing a route, it is also good to think how to approach the control safely and quickly without wasting time on reading a very detailed area. Is there any clear and visible object or place that is easy to follow and will take me straight to the control? This kind of feature is called an attack point. In easier courses these attack points could be clear trail crossings or vegetation boundaries. In longer and more difficult courses, top of hills are good attack points. (Hytönen 2018, 112.)

The attack point is good to remember also in shorter legs. Carefully planning a route choice, attack point planning and decision making facilitate control picking.

2.1.6 Judging and estimating distances

Judging and estimating distances has been one essential orienteering skill. Especially in the old days, when maps were not very detailed and map scales were smaller, distance judging and estimating were very useful skills. Judging and estimating can be optimized with speed pacing or step counting. (Norfolk Orienteering Club 2020.)

Maps are now so accurate that you will get very close to the control without estimating the distance, but in empty areas without any objects to read, estimating the distance and right compass bearing may be the only way to approach the control. Training for judging and estimating the distance may be done by calculating how many steps it takes to walk and run a measured distance of 100 metres. It is also good to remember that your step length may vary when you get tired. (Norfolk Orienteering Club 2020.)

2.1.7 Equipment handling

When talking about equipment handling, one must remember that the map is the most important tool for an orienteer. Understanding the map and using the information that it provides is the fundamental part of orienteering.

It was previously mentioned that folding the map is one part of equipment handling: it should be done that a specific leg or the whole course is visible, leaving out the unnecessary information on the map

such as title and logos, and this way it will be much easier and comfortable to navigate. Folding the map correctly is one technical skill that is worth learning from the very beginning.

Along with the map there is some more equipment needed. Compass, outdoor clothing and suitable shoes for park or forest are some examples. Many sport stores nowadays sell suitable shoes, sport clothing and other equipment useful for orienteering. Orienteering shoes are made with a better grip for the forest surface and with quick drying material. Clothes are basically made with durable material that does not stretch if it encounters thick vegetation. Before an orienteering activity it's good to check the weather forecast, as then clothing options would differ between a sunny, rainy or snowy day.

In orienteering competitions or training orienteers are visiting the controls by using electronic punching systems: it will prove that they have visited the checkpoints in the correct order and give a total time and each split-time between two controls. EMIT AS (2020) and SPORTident GmbH (2020) are the most popular. Sportservice (2020) and Learnjoy Sports (2020) are new and growing in the eastern countries, the first is from Russia and second from China. EMIT AS (2020) is mainly used in Finland, Denmark and Norway; SPORTident GmbH (2020) in most of the other Countries. The electronic punching card is handheld, and the punching station can be found at each control. (EMIT AS 2020; SPORTident GmbH 2020; Sportservice 2020; Learnjoy Sports 2020.)

With this in mind, it is possible that you need to hold the compass, the electronic card and the map while running orienteering: handling and combining all these equipment while moving needs a lot of experience and fine tuning. That is also why it is good to focus one part at a time, starting to navigate with the map only and adding the use of the compass later on, only if necessary.

Until the late 90' the only punching method was a needle punch placed at each checkpoint that punches a pattern of small holes in the control card, that each runner holds in his/her hands while navigating. This system is still used in some schools but organizing an activity with it is more time consuming and difficult.

2.2 Physical skills

A unique physical demand is asked by orienteering to the athlete's body: hiking, running and walking are relevant activities for training and the important skills to build are agility, strength and balancing on different surfaces. Creagh & Reilly (1997, 409-418) state that the energy cost of orienteering running is greatly increased in rough terrain. Oxygen cost is 26% higher while running in a forest when compared with road running. The rough terrain encountered in orienteering results not only in a high energy cost but also in a higher incidence of sport-specific injuries, particularly to the ankle. (Creagh & Reilly 1997, 409–418.)

Like written in the very early publication Suunnistusaapinen (1954, 6), orienteering is a sport where physical fitness is the alpha and omega of everything. Without it, a competitor will not be able to climb over hills, jump over broken trees, or easily run in swamps. (Suunnistusaapinen 1954, 6.)

When coaching young orienteers, regular exercise should be preferred rather than intense training. Normal outdoor play, walking, running, hiking, biking, skiing and orienteering are very good ways to get fit. At a young age, the emphasis should be on regular exercise, rather than on intense training.

Training for teenagers should indeed be running both on a paved road and in the forest (on trails or cross country). Emphasis should mostly be on achieving a good fitness base before training orienteering skills.

At an intermediate and advanced level, the best way to develop balance, agility, and footing on different surfaces is training in the forest, as orienteering takes place there. The different surfaces are useful for injury prevention as they potentiate the muscles required for moving through sand, marshes, woods and fields. On the other hand, the best place to train speed is on a track or any other smooth surface. Salmi (2010) writes that physical skills and qualities for orienteering athletes are a load resistant body, good endurance capacity and good ground speed; Boga (1997, 108-109) goes a bit explaining that a unique running style is also necessary, because running through the woods is favoured if the knees are high lifted without altering the body's center of gravity. He also adds that this must be combined with good body balance and coordination. (Salmi 2010; Boga 1997, 108-109.)

Both general and specific strength are also required in orienteering.
General strength is important to have control of the posture and coordination of our body, in order to reduce possible traumas and to grant a foundation for demanding training and competition stages. The best way to cope with intense training and work with our body for an extensive period, is to strengthen side and back muscles and improve core stability. Shoulders, chest and upper back have to be strong for the body to be well balanced. For movements within the sport of orienteering, specific strength is needed in those muscles that orienteers use the most. Focus here is on leg muscles because they are those that work the hardest and are essential to quickly move our body through steep terrain. To get the most out of our muscles, they need to have excellent strength endurance but be light. To train specific strength, uphill and downhill running work on concentric and eccentric types of movements and are excellent, plus running on marshy ground/snow/sand or fast running with resistance. (Andersson, G. 2004.)

2.2.1 School Physical Activity

The sport of orienteering is a fantastic teaching tool. Teachers are able to explain and illustrate many abstract ideas in concrete terms with it. Orienteering also appeals to multiple learning levels students. It can be used at the beginning of the school year as a 'team building' activity to introduce the new students to each other with an adventure race. And at the end of the year, it is often used during or before school trips to prepare the students or to add an active visiting of the city where the trip is organized. (Orienteering Cincinnati 2001.)

Orienteering can be developed around many subjects, from Maths and Science through Arts and History, with any age group from Primary School to University.
It is important to have clear objectives and goals when introducing an orienteering activity to the students to get their attention and to make sure that they will get the concepts. If the students have fun during one of these events, it is more likely that they want to repeat it again and bring it to the next level. It is useful to start in a familiar environment such as a classroom or school indoor area, and then move outside for an outdoor experience. (Orienteering Cincinnati 2001.)

Orienteering skills for beginners are mainly about recognising spatial relationship, distance and direction. Physical education is for sure the main subject that can be used, but the geometry curriculum could include exercises that for example require drawing on paper the outline of different objects placed on a table or on the floor, and students need to recognize their size and shape, the distance between each of them and the direction that they are facing. (Orienteering New Zealand 2014, 3-4.)

Students can easily map their classroom, their home or even the route they take daily to reach school (drawing the street, parks and other main buildings that they encounter). (Orienteering New Zealand 2014, 5.) The following are example on how orienteering applies to different school subjects and can be used to develop intellectual stimulation:

GEOGRAPHY	Maps, plans, contours, landforms, urban and rural surveys
PHYSICAL EDUCATION	Walking, running, agility, fitness
MATHS AND PHYSICS	Plans, scales, angles, symbols, time, distance, speed, arithmetic, surveying, estimations, spatial relationship
OUTDOOR EDUCATION	Exploration, outdoor independent work with constant supervision by an instructor, forest and environment study
SOCIAL STUDIES	Planning ahead, problem solving, decision making, memory skills, concentration, self-confidence, self-esteem

Figure 3. School subjects and orienteering related skills. (Orienteering New Zealand 2014, 5.)

2.2.2 Athlete Development

This paragraph is very important because it will explain why exposing children to a variety of different physical activities will ensure that they become all-round athletes, with a background that could be useful to have success in whatever sport they choose. The stages of long term athletic development are normally ten, but we discuss only about the first five because they are those more important for children of school age.

- ONE - The first 10 years

It takes at least ten years and more than 10.000 hours of training for a talented athlete to reach the elite level, according to scientific research reports. This translates for an athlete into approximately three hours of raining or competition daily over 10 years.

- TWO – FUNdamentals

At an early age, children must learn fundamental movement skills such as running, jumping and climbing introduced to them through fun games, both indoor or outdoor, such as in a forest environment. With these basic movements, children will get confidence with ABCS: agility, balance, coordination, speed.

- THREE – Specialization

Early or late specialization sports differ mainly because certain complex skills must be learned before maturation. Gymnastics, diving and figure skating are examples of early specialization sports. Orienteering is a late specialization sport, but anyone can take part in orienteering games as early as they can walk.

- FOUR - Developmental Age

The developmental age refers to the physical, mental, cognitive, and emotional maturity of an athlete. Skeletal maturity and bone age drive the physical development age. After this, mental, cognitive, and emotional maturity is assimilated. Even with an identical chronological age, children can have differences in their level of biological maturation by many years; some athletes of the same age may have a different development up to five years when they are between 10 and 16 years old. If in this period athletes are granted a top quality coaching and training, those that are late maturers have more chances to turn into top elite athletes.

- FIVE – Trainability

This stage refers to the individual response to training consequences at their different situation of body maturation and growth. There are different trainable elements that are associated with the body development and there are different periods: this consists in the window of trainability. Training can have optimal effects on the body development and cause different behaviours in specific points or periods. (Orienteering Canada 2012.)

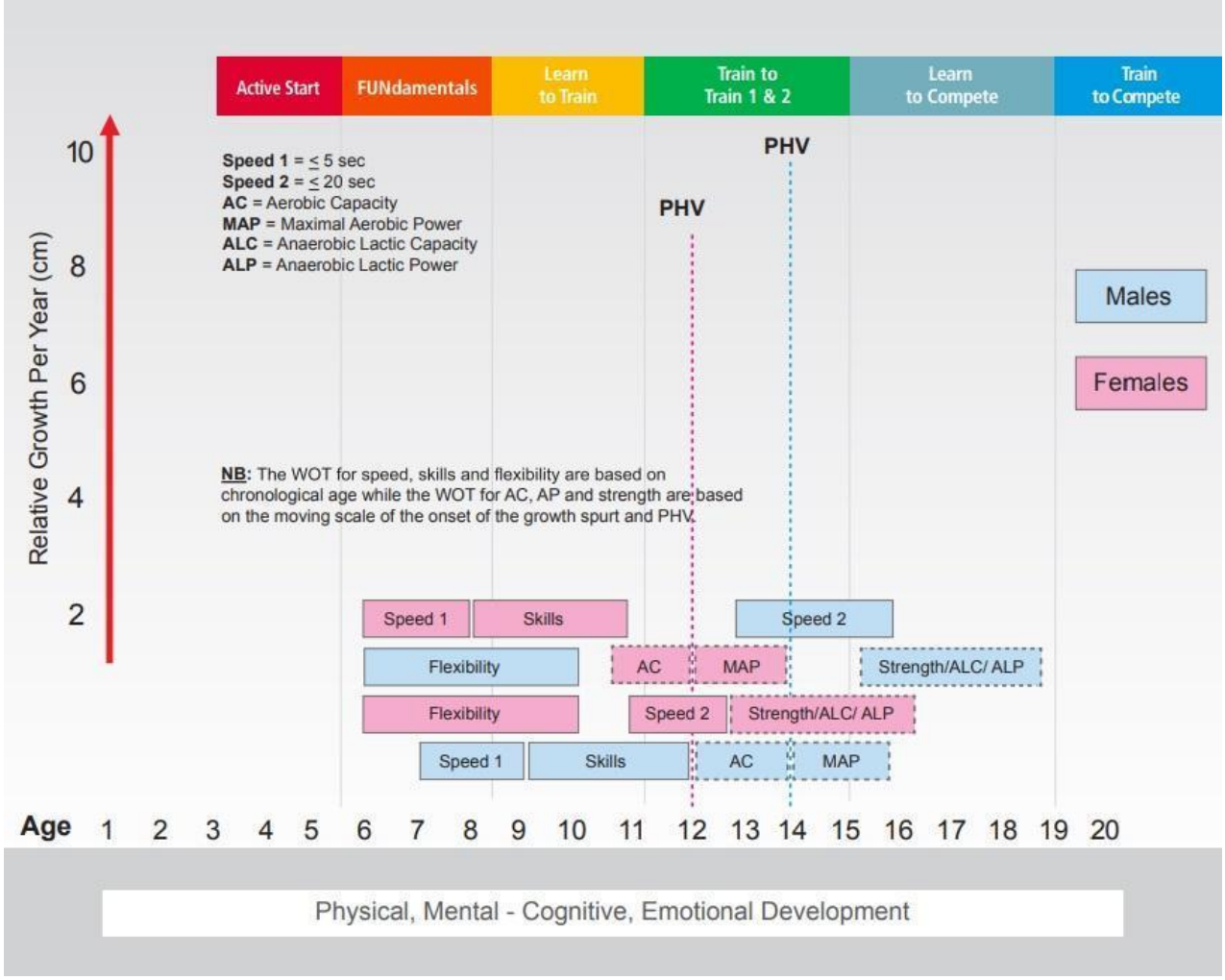

Figure 4. Long Term Athlete Development Model (Orienteering Canada 2012, 7.)

2.3 Cognitive skills

Within orienteering, thoughts turn into actions. And this is something to care about when teaching students, as during the day we have many thoughts that cause a counteraction within our body. Physical feelings related to an emotion or specific muscles can be triggered by nerve impulses. (Andersson, G. 2004.)

When things go right during an orienteering course for a student and he or she runs a whole course without mistakes, they have a positive feeling. And if this happens several times it will definitely increase their self-confidence and self-esteem, and they will want to run more demanding courses. But what are the psychological factors that are behind a successful performance?

Personality is one of the most decisive factors; it is partly the result of inheritance and partly the environmental influences experienced in our life. These factors together make up the personality. But in orienteering, not only this is behind a successful result: motivation, the ability to tolerate stress or to focus on a task, self-confidence, concentration, determination, nerve control and positive attitude are decisive.

In the research conducted by Magalhaes (2001) and Nazario (2001), there is a relationship between visual memory and performance level in orienteering. But this is not supported by the results of Guzmán et al. (2008), that found no differences between memory and spatial organisation in a later study. (Megalhaes P. 2001; Nazario B. 2001; Guzmán et al., 2008.)

We think anyway that developing all these abilities, including visual memory, from a very young age is crucial because the practice of orienteering for a kid can only result in a positive outcome in the future. In fact, like written in the Kiwi-O Manual (Orienteering New Zealand 2014.), orienteering is mainly about perceiving spatial relationships, distances and directions. (Orienteering New Zealand, 2014. 5.) So even if the correlation of those abilities with an elite performance is not certain, that is not a problem because our main goal is to develop the sport in the school environment and not at a high level.

3 Training sessions

In orienteering, you have to train the technical and physical skills mentioned in the previous chapters. To do so, especially in the school environment, instructors need to select the proper training activity to develop a certain ability.

Before the beginning of an orienteering curriculum with a classroom, teachers should plan the lessons depending on the time they have available, the age of the students, the pre-knowledge of them and what are the outcome goals.

3.1 Planning the trainings

There are many activities available and most of them are possible to take place both indoor or outdoor (school yard, parkland). So if the plan is to organize an orienteering activity outside, there should

always be a plan B in case of severe weather conditions. In cold seasons, planning indoor orienteering training is not a problem, because places like a school classroom, the school corridors and the school hall are good locations for activities.

Another thing teachers should always keep in mind is timing. Some activities require a long introduction as students need to understand all the steps and objectives of the training, and it could also happen that some students need more time to complete one course than others. So having in mind a possible time frame for the chosen activity is crucial, as to avoid having nothing to do in case one activity was very short or needing extra time in case some students got lost and are not coming back in time when the lesson time is over.

Extra attention needs to be paid when preparing the exercises: course setting, map preparation, map printing, map lamination, control flags placement, equipment set-up, time keeping are all things that require time to organize. It's always better to reserve more time than it requires to complete these tasks, in order to have extra time available if something happens (map changes, new fences, gate closed, etc...).

Using softwares like Ocad, Purple Pen, Open Orienteering Mappers, etc… is important to accelerate the course setting process and they are very easy to access and use. (The International Orienteering Federation, 2020d.)

3.2 Warmup

Warm up is a key part before starting any activity. By warming up we will prepare our body mentally and physically for exercise or competition. Planning warm-up is good to remember facts why we really do it before every activity and exercise. The main purpose of warm up is to affect the temperature of the muscles and core. Warm up also improves blood flow rate and has a positive effect for the mobility of muscles, joints and connective tissues. (Jeffreys, I. 2007.)

Boga (1997) easily explains that a warm-up comprehends ten to fifteen minutes of activity. The intensity should be gradually increased. The ideal warm-up heats up muscles and connective tissues, making them more supple and resistant to injury, and might include a brisk walk for two to five minutes followed by stretching from head to toe. (Boga, S. 1997.)

BAKC AND NECK	ARMS	LEGS
Bent-knee toe touches	Reach vertically	Groin stretch
Stand and arch	Reach forward	Quad stretch
Side bends	Arm circles	Hamstring stretch
Twist upper back	Chest stretch	Calf stretch
Flex and extend neck		Raise up on toes
bend neck side to side		Ankle rolls

Table 1. Examples of stretches. (Boga, S. 1997. 105.)

Nowadays things are a bit different, and Parker R. writes in a blog article (Parker 4 March 2019.) about Ian Jeffreys who developed the RAMP warm-up. Its benefits and effectiveness have been observed around the world among many different athletes and instructors. The whole body activation with the RAMP is proven to be the most scientifically effective warm-up. (Parker 4 March 2019; Jeffreys, I. 2018.)

We think that Boga's (1997) proposal would be enough for a warm-up session with school kids, but we wanted to explain the R.A.M.P. warm-up as there is a lot of scientific evidence behind it. (Boga, S. 1997.)

R.A.M.P comes from terms raise, activate, mobilize and potentiation. This kind of warm up method warms up muscles and cardiovascular systems in right and safety order. Muscles and the whole body are more elastic for orienteering sessions.

	RAISE	ACTIVATE	MOBILISE	POTENTIATE
R.A.M.P stands for:	Main idea is to raise heart rate, increase the temperature of muscles and the cardiovascular system, and the whole body. A warm body is more prepared to receive upcoming exercises better.	Activate all necessary muscle groups and also brains for training. Body activation movements require control and remembering range of motion.	Activate and mobilise all necessary joints which are used in exercise. Focus range of motion. This activation and mobilization of the joints as well as the range of motion lubricates the joints with joint fluid, which in turn reduces joint wear. Activate and mobilise parts also have a positive effect on proprioception. Brains understand what you are doing and which position.	Finally, the body is prepared for main exercise, with full intensity. With short but intensive performances, the body is prepared for the main longer activity or competition.
Examples for orienteers:	Easy jogging to the starting place (road, path), including also short running on the terrain side. Possibly also have an old map with you, warming brains and mind for upcoming race or exercise.	Rotations (wind mills etc.), hip-opener walk. Running technique drills (toe tip single leg squat, lunge walk with rotation, side lunge, High Knee skips etc.) are useful for activating and mobilising the whole body for running in the terrain. Remember control in every movement and focus that movement comes from hips.		The principle is to prepare the body to jump over obstacles (tree trunks, streams), running in soft places (marsh etc.). So mainly jumping, leaping and dodging obstacles. Some speed up runs also needed, uphill and downhill as well.

Figure 5. RAMP warm up for Orieteering. (Karatay, M. 2017.)

However, when thinking about the school orienteering and physical education, the most important thing to keep in mind is motivation and inspiration. Group mobility activities are bonding and fun, and will serve as a full body warm-up. Small orienteering games are also possible, like Cones Grid (reference), with which the students perform basic movements without having a competition speed and make them use some basic orienteering skills that will be needed later in what will be the real activity that is planned for the lesson.

3.3 Cool down

The purpose of the cool down is to recover from the exercise, to remove metabolic waste and prepare the body for next training session. That is why cool down has such an important role in development.

A typical cool down activity for the students is picking up the control flags, at the end of the lesson. Generally they remember the control locations and it's easier for the instructors so they don't have to go pick them up. Another activity could be a five minutes relaxation exercise, or stretching.

4 Empirical Work

The idea of creating an online database of activities related to the practice of orienteering in schools came to our mind at the end of summer 2019, as we worked together for a project with Länsiharju Primary School in Lahti. Our task was to prepare the orienteering map of the school yard and hall, with the addition of a guidebook available for teachers. In the guidebook we quickly introduced orienteering and the main part consisted of eight exercises that could be organized with the maps and courses we made. We also held two days of practices with some classes to demonstrate to the teachers how the activities have to be prepared and undertaken. The result was successful and the feedback positive, so we both started thinking that it would be needed on a bigger scale, online and not on paper, accessible to all the schools that are interested and in multi-language.

As we both have many previous school teaching experiences in Finland, Italy and Australia, we have plenty of material to collect, analyze and share. Stefano also started orienteering thanks to primary school lessons, so it is our goal to increase the number of school orienteers that may continue later with the sport. With this website, it will be easier for teachers to gain knowledge and ask for assistance if needed; especially for mapping and course setting.

In Finland orienteering is well known by PE teachers, but in other countries it is not and for some teachers it might sound difficult to organize it during school lessons: we want to share tips and tricks and personal experience to show that it can be held easily and with great feedback and interest from the students. So our answer is to develop a website with mapping, equipment, activities and instructions that would allow teachers, with any kind of experience, how to plan motivating orienteering lessons and maximize the practice of orienteering in schools. This way teachers will not spend too much time in the preparation or thinking what to do when introducing orienteering in the curriculum.

4.1 Project Planning

It was not easy to decide how to organize the website and what to include. The first idea was to divide the activities by suitable ages, but most of them are ok for all primary school classes, with some

adjustments and variations. So we decided to divide the training into four main topics. The first is ‘understanding’ and includes ice-breaking activities, mainly to have them indoor in the classroom or school hall; with these training students are able to understand maps, symbols, colours and practice memory and map making skills. The second topic is ‘familiarization’ that is important for getting to know how to hold a map and move in a familiar area completing some tasks; with these activities students know what are the important tasks to complete a simple course and keeping the map in the right direction all the time. The third topic is ‘navigation’ so it includes more difficult activities, that will require more ability and will take longer time to complete; the training is proper orienteering practices and sometimes the map has less detail, so it will require a lot of concentration even in a familiar area. The last topic is ‘competition’ so teachers can prepare the class on how to compete in real orienteering races, that could be the School Champs or some more demanding races outside the school yard and possibly in the forest.

We wanted to include a lot of info in every activity page so we decided to organize them in nine sections to describe what is the suitable age, location and duration for the training; of course after that we have the goal of the activity, its description, the equipment needed, the preparation and implementation, and in the end possible variations to make it more easy/difficult or just different.

Because of the many books and articles about orienteering in different languages, we don’t put on the website all the theory but only the activities, and the idea is to keep it updated so we will edit or add activities every now and then, probably after suggestions for teachers or after the exchange of information with other instructors around the world.

We plan to have in the website a page about mapping and equipment, where teachers can learn how to make their own school map (and which are the steps to follow for an easy process) and what to use during the activities or where to buy/rent the equipment.

Lastly, our product tries to be a summary of the many resources that are already available online or in books. This way it will be easier to collect the info about orienteering in schools in just one webpage.

4.2 Project Implementation

First of all we collected all the activities we organized in our past school teaching works and experiences and we wrote down the description for each training, with example maps and images. With plenty of material available, we had to divide it in the single activities, which then had to be divided by topics.

After this work was done, we opened the website with Google Sites and we bought a custom domain to have it easily accessible and recognizable on search engines. With the Google Site builder it was easy to create the structure of the website, but there were still a lot of pages to organize and fill with the content we collected. After a while we also decided to add different sections for every activity in order to write the description in English and Finnish at first, with the possibility to add more languages in the future; those could easily be Italian and Swedish for example.

5 Product Description

The website is an online guide for school teachers which includes orienteering activities for the whole school year and for all ages, to maximize the teachers' ability in providing successful and interesting training during PE classes, indoor and outdoor. It provides different levels of activities divided in four main topics and information about mapping and equipment. In the contact section, teachers and instructors can ask for guidance on preparing specific training, making the school maps or ordering a school visit where we can show how the activities work.

The online guide does not go deep into physical, technical and psychological preparation as that is not the main goal for the introduction of orienteering at primary school, as the main benefits is to introduce to the students a great sport that can teach them more than what they would think, like life-saving skills or social/cooperation skills, while practicing their movement and memory.

Examples of suitable progressions in terms of weekly activities in the range of a month are also included to show the teachers what was commonly used by us in our previous experiences. This way teachers can plan ahead a 10 hours orienteering curriculum divided in five weeks, as an example.

Lastly, there will be examples of assessment guidelines that help teachers in grading their students at the end of the orienteering lessons, mostly taken after the individual result of the School Champs event, held at the end of the five weeks orienteering lessons. It is strongly advised that the assessment takes place after all students have taken part in all the orienteering activities offered, and if some students are lacking confidence or knowledge, the teacher can organize extra training.

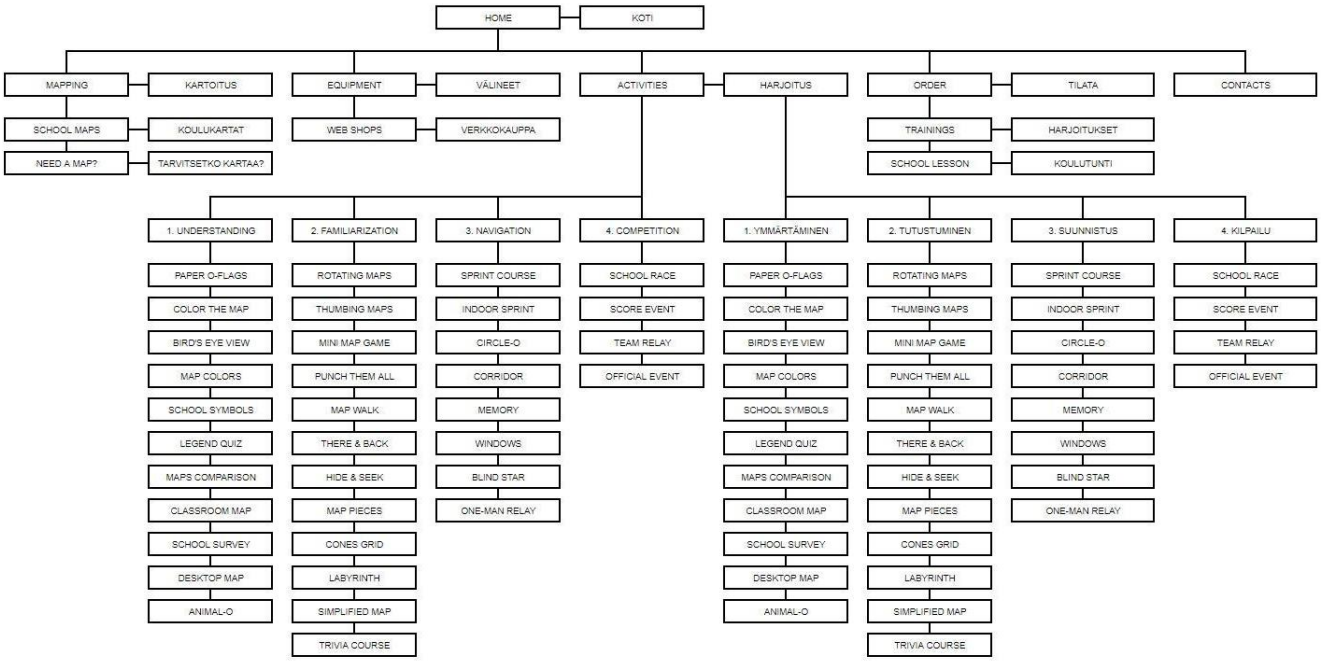

Figure 6. Schoolorienteering.com website structure.

6 Discussion

Our Product-oriented Thesis has been created and imagined as a necessary tool for the development of the sport of orienteering the worldwide school environment. At this point, there is no common school system that tells teachers and instructors how to operate and everytime this activity is introduced there may be similar problems and time-consuming preparations, especially due to lack of knowledge and experience. Technologies should also be taken more in consideration, as nowadays there are many easy PC programmes that are user friendly and especially made for school teaching and orienteering course setting. They can be used also for map making, something that teachers may consider very difficult but that actually is not; and this would solve maybe the most common problem that a teacher has: having the map itself, of the school yard, the hall, the surrounding parkland and having them all updated.

Orienteering is primarily a sport but serves as a multi-subject curriculum and teaches school students a lot of skills, that varies from pure physical activity to outdoor exploration, from geography knowledge to cognitive skills such as confidence and self-esteem. There are thousands of orienteering athletes around the world that were first introduced to the sport during their school years, and in many countries it is still one of the main sports that is practiced in the school environment. But orienteering is very complex and it is hard to have frequent trainings organized by orienteering clubs (if we do not consider the Scandinavian area) so kids are often loving the sport but moving to a different and maybe more popular one, after the first and only practice during their primary school period.

With this in mind, having a website like the one we produced could make it easier for teachers and club instructors to understand that in certain ways you can overcome the complexity of orienteering organizing simple activities, that are proved to be efficient but very easy to organize and prepare.

Our website itself has the main goal to provide activities with a clear description and practical examples, so that any teacher could run them, learn the background idea, create the map with or without a PC and have an excellent activity with the class or the group of kids that have to be instructed.

Kids have a lot of fun when practicing orienteering and school instructors should focus a lot in motivating the students, even the more scared ones, to join the proposed activities and set own goals to achieve, without putting emphasis on physical performance and the time result itself. The different exercise variations are there to never make orienteering lessons boring, and they can be held both inside (in the classroom, the school corridors or the school hall) and outside (in the school yard or in the adiacent parkland). Students can also receive assignments to produce their apartment or house map, including the garden and the street on the front, so they can practice with their family as well and introduce them to the sport.

When talking about orienteering in schools, it is certain that it can be used for the students evaluation as well. School races are the best way to assess the improvement of the class and conclude the curriculum. With these, it is always better not to provide time results at the end and even have different courses, because the goal is to complete the course and overcome all the route choices and decision points that are within the activity.

Our website is containing 40+ activities at this point, divided in four main categories. The idea we have is to make it grow bigger and add more exercises and examples, with new creative content as well such as video materials and audio lessons. It would definitely need a different organization if we have more activities, and maybe we should think about a different classification. In the appendix of our Thesis document we published only a selected range of activities from each category, because most of them will be only available on our website after registration.

We have to take into consideration the feedback that we'll receive from schools and instructors, as at this point we built the website only following our opinions and past experiences. Other points we want to analyze are the effective utilization of the website from school teachers and their comments. How many schools are using it? Is the material well written? Are the instructions clear? Is there something missing? How could it be improved?

Of course teachers and instructors can order on the website the production of their school map, the presence of one of us as an instructor or as a course setter for the activities. This should be contained in a proper section of the website, that is missing at the moment.

We are highly confident that this website serves as a multi purpose guide to either start an orienteering program in schools or improve a current one. All the information provided is simple yet brief, and helps in getting the overall picture in what to consider when instructing students.

It was challenging for us to produce this guide but very exciting at the same time. We are driven by passion and we love doing anything that is orienteering related. We want to thank everyone that supported us during this work and we hope this will become beneficial for any international school or orienteering club and, most important, for the benefit of young school orienteers.

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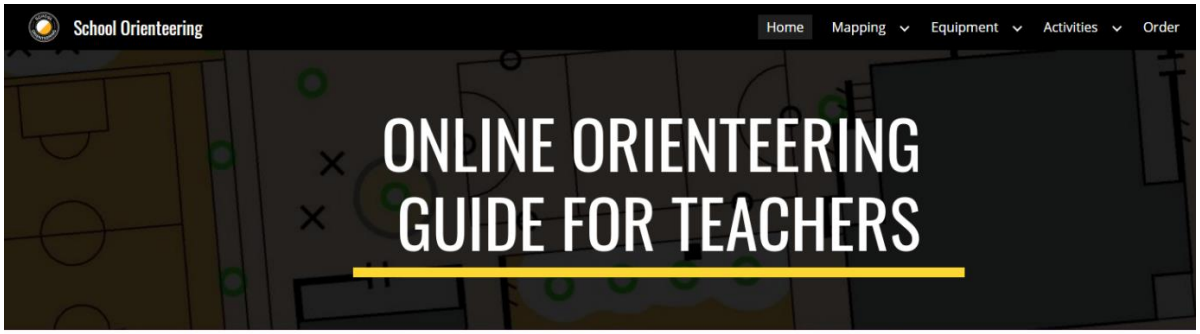
Appendices

Appendix 1. Website pages



Language: FINNISH

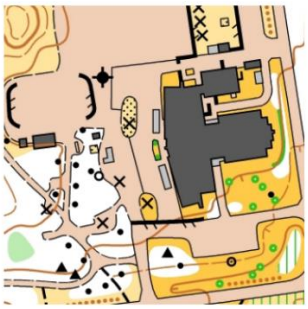
ORIENTEERING IN SCHOOLS

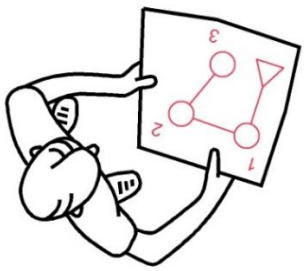
Orienteering is a challenging outdoor adventure sport that exercises both the mind and the body. The aim is to navigate in sequence between control points marked on a unique orienteering map and decide the best route to complete the course in the quickest time.

There is great potential for developing orienteering within schools with simplified and progressive orienteering activities that can take place in the school grounds or inside the classroom. Orienteering is also a cross curricular activity and can support subjects such as Maths, PE and Geography.

Keep it simple! Use your imagination!

This website content covers three main topics, use the top menu bar or click on the image to select the pages you want:





1. MAPPING

(easy steps to create your own school map or info about hiring a professional mapper)

- School maps

2. EQUIPMENT

(useful material and directions where to buy it, or what to do in case of a small budget)

- Web shops

3. ACTIVITIES

(details about all the activities that are possible and their progression)

- Understanding
- Familiarization
- Navigation
- Competition

Language: FINNISH

In order to deliver an orienteering programme that will enable progression within your school and beyond, we recommend that you commission the production of an orienteering map. Orienteering maps are produced to a specification and this section will give you advice on how to get a map produced.

There are two ways to go about getting a map of your school drawn:

• You may do your own surveying and cartography. Although this may appear to be cheaper, it is likely to take up a significant amount of your time and you may not have the equipment to do the job.

• You may choose to employ a specialist school orienteering mapper. Using a mapper can be an expense, but it will result in the production of a computer generated accurate and professional looking map.

You may wish to consider the following

• Decide on the area to be mapped. In most cases this will be your school site.

• Normal maps are produced in colour – if you wish to reproduce in black & white then please discuss this with the Mapper.

• We recommend that you make sure you agree before you commission a mapper what you are getting for your money.

Employing a Mapper

• Remember to ask your local club if a map of your school exists already. It may be old but still good as a base-map for a newer map. Ask also if there is a mapper willing to do the survey and what is the estimation costs, if there are any.

• You can ask to see a portfolio of the Mappers work. Our mappers old jobs are visible at the page SCHOOL MAPS.

• Always agree a price. Most school maps will take just 1 day for surveying and 1 day for the cartography. Therefore a minimum price will be in the region of €150 to €300 for a map, depending on the complexity and size of your site and the travel costs of the Mapper. A maximum price should be €800 to €1000.

• You can order a map from us at the page ORDER.

AERIAL IMAGE

Maybe the most common 'base map' to have as a reference when the mapper has to prepare a school map survey. Can be easy and free to get (Google Maps) and enough accurate.

MAPPER'S FIELDWORK

The mapper starts the field work, drawing on the printed 'base map' the buildings outlines and all other relevant objects. Each mapper has his own tools and technique.

COMPUTER DRAWING

When the fieldwork is scanned it can be imported on a drawing program (PS/Adobe) or a mapping program (Ocad/OOM) and the digital map is created.

FINAL PRODUCT

Last important thing is to add all info like school name, scale (and contour interval if necessary), north arrow and lines, map owner and commissioner, legend and mapper's name.

EQUIPMENT

Language: FINNISH

In order to deliver orienteering activities in a school you may need to obtain further equipment.

CONTROL MARKERS

The aim is to navigate in sequence between control points that are identified by a control marker. You can make your own, or they can be purchased from a commercial supplier.

ORIENTEERING PUNCHES

You will also need some way of confirming the correct marker has been found. This can also be homemade or you can purchase a set of 10 orienteering punches, from the suppliers mentioned above.

ELECTRONIC PUNCHING

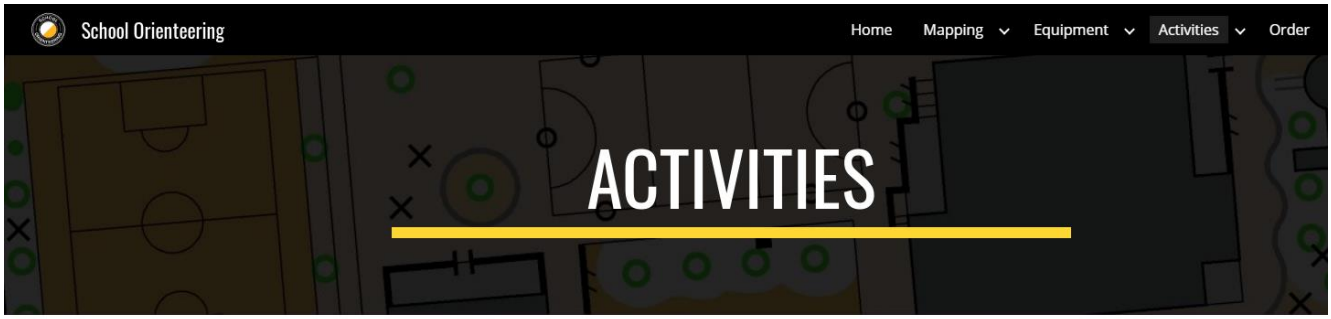
If you want to take your school orienteering to the next level, you should consider buying the SportIDENT school kit, with punching units, chip finger cards and thermal printer. The kids will love it and the expected lifetime is more than 10 years.

COMPASSES

Although compasses are not essential for curriculum learning on a school site, schools may wish to purchase a set for advanced learning and off site progression.

THUMB COMPASSES

This is the elite compass mainly used by competitive orienteers. It can also be ordered and used in schools but it's more expensive than the traditional compasses.



Language: FINNISH

Each activity can be a stand alone exercise used within curriculum lessons or an after school club or used together to provide the basis for a festival of introductory orienteering and appropriate multi skills stations.

These activities are designed to enable the teaching of basic orienteering skills and associated physical skills in a fun and exciting manner. Resources required to run the activities and organize a festival are included in this pack, no specialized equipment is needed to run the activities.

The activities provide plenty of opportunities to encourage teamwork and co-operation.

In each activity page you will find:

- **Ages:** indication of the best age spam of the target group
- **Location:** suitable place where the activity should be taken
- **Duration:** typical length of the activity
- **Aim:** goal of the activity
- **Description:** overall idea about the activity
- **Equipment:** the material that is needed
- **Preparation:** how to prepare the material (especially the map)
- **Implementation:** step by step explanation
- **Tips and variations:** Tips and progression proposal for activity variations

List of activities:

1. UNDERSTANDING

- Paper O-flags
- Color the map
- Bird's eye view
- Map colors
- School symbols
- Legend quiz
- Maps comparison
- Classroom map
- School survey
- Desktop map
- Animal-O

2. FAMILIARIZATION

- Rotating maps
- Thumbing maps
- Mini map game
- Punch them all
- Map walk
- There & back
- Hide & seek
- Map pieces
- Cones grid
- Labyrinth
- Simplified map
- Trivia course

3. NAVIGATION

- Sprint course
- Indoor sprint
- Circle-O
- Corridor
- Memory
- Windows
- Blind-O
- One-Man relay

4. COMPETITION

- School race
- Score event
- Team Relay
- Official event

List of orienteering games and applications that you can find online:

- 3DRerun (analysis) www.3drerun.worldofo.com

1-C

(ENG) BIRD'S EYE VIEW

- **Ages:** 6-9 y/o
- **Location:** Classroom
- **Duration:** 10-15 minutes
- **Aim:**

1. See how objects are drawn on the map
2. Understand the view from above

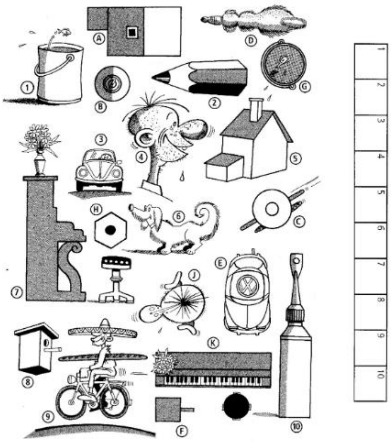
- **Equipment:**

1. Activity images, that you find below
2. Print them on a big paper sheet or you show them with a projector

- **Implementation:**

1. The students understand the exercise seeing the first image, where there are the objects seen in 3D and with the bird's eye view
2. In groups or individually they have to complete the second activity image
3. Each letter corresponds to a number. The image with a letter is seen from above, the image with the number is the drawing
4. After the exercise, the teacher gives comments and feedback to the class

(FIN) LINTUPERSPEKTIIVI



1-M

(ENG) ANIMAL-O

- **Ages:** 6-9 y/o
- **Location:** School yard / Classroom / School hall
- **Duration:** 20-30 minutes
- **Aim:**

1. To explore the school yard still without a map, trying to remember the controls locations
2. To practice running between controls in a specific order

- **Description:**

1. Have a school walk while you go with the kids through the controls and you give instructions to memorize the animals.
2. You let the kids navigate with a paper that only tells them in which order they have to reach some controls.
3. Kids can run individually or in groups.

- **Equipment:**

1. 9x controls (with one different laminated animal figure each)
2. 9x punching units / emit / flags
3. different course papers, at least a couple per kid

- **Preparation:**

1. Print and laminate 9 different animals.
2. Place them in different places around the school; put them in places easy to remember.
3. Instruct the kids with clear features to use to remember where are the different animals.
4. Make sure that the students know which is the area they are allowed to stay in (for safety reasons).

- **Implementation:**

1. Kids receive a piece of paper with the different animals and in which order they have to find them.
2. Kids navigate through the school reaching the animals controls in the right order (eventually they punch manually the paper they have received or they use emit).
3. The students have to remember the locations of all the animals, if they don't remember or they go to the wrong one, you can help them to find the one they were looking for.

- **Variations:**

1. Use more controls and add more different animals.
2. Change the animals with other objects, like sport equipment or colors.
3. Use the classroom or the school hall / gym. Any place can be used, you don't actually need to use any existing map.

(FIN) ELÄIN- SUUNNISTUS

2-H

(ENG) MAP PIECES

- **Ages:** 6-9 y/o
- **Location:** School yard
- **Duration:** 15-20 minutes
- **Aim:**

1. Getting to know the map and learning how the map is made
2. Outlining the map and remembering the familiar school environment
3. Combining map blocks and exercise the mind

- **Description:**

1. Children look at the map pieces and try to identify the position of the checkpoint on the map
2. After identifying the locations of the control, the children navigates through the map pieces / controls in numerical order

- **Equipment:**

1. 10x school maps
2. 9x orienteering flags / ribbons for the controls and the start / finish area
3. 10x blank papers / cardboard

- **Preparation:**

1. Print 10 school maps
2. Cut nine (9) similar pieces of map from original school maps (see example picture below)
3. Choose the venue (start and finish area) of your choice
4. Mark the assembly point (start = triangle, finish = "double circle") in red on the map pieces
5. Select 8 checkpoints of your choice and mark them on the rest of the map pieces with red circles, one (1) circle / map piece
6. Add the serial number next to the circles
7. You can mark different numbers / order for the map pieces. In this case, the participants will not move along the map pieces (controls) in the same order
8. Glue the ready-made map pieces (8 for checkpoints + 1 for assembly point) on blank papers / cardboard
9. Note: it is good to always have the gathering place at the center (see picture)
10. Protect the finished map block maps with map plastic or laminate them

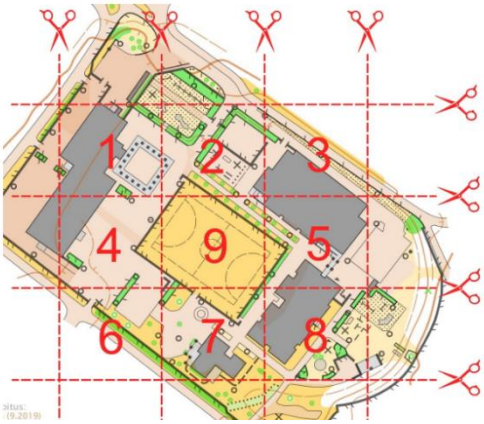
- **Implementation:**

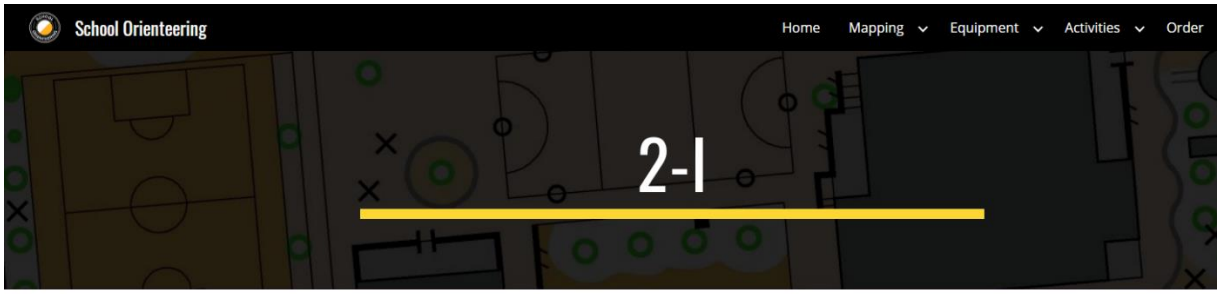
1. Divide participants into pairs or small groups
2. Distribute at least one map to each pair / group
3. Before the exercise, explore together the school yard. Buildings, fences, objects, etc.
4. Pairs / groups can leave at the same time
5. You can come to the gathering place for tips during the exercise

- **Variations:**

1. Map tiles are rotated in numerical order (or in random order)
2. If each control has a different feature, you can also apply the exercise as a memory game, in which participants must remember at the end what the controls features were

(FIN) KARTTAVÄLIPALA





(ENG) CONES GRID

- **Ages:** 6+ y/o
- **Location:** School hall, playground
- **Duration:** 15-45 minutes
- **Aim:**

1. Map visualization and ability to convert map directions to navigation
2. Orienting and rotating the map
3. Quick reactions, turns and directions
4. Combining map reading and running speed

- **Description:**

1. Participants rotate the maps several times
2. Dots on the map indicate cones or even orienteering flags
3. There are many different courses

- **Equipment:**

1. 11x cones / flags (18+ for harder versions)
2. Grid maps prepared with courses

- **Preparation:**

1. Create your dot pattern or dot pattern on blank paper (see examples)
2. Invent, design and draw enough course between your dots grid
3. Copy finished course maps (several maps can be cut from the same A4 paper sheet)
4. Place the cones / flags in the pattern accordingly to the map
5. You can make a harder 18 dots pattern ready on another place or, for example, to be intrduced halfway through the activity

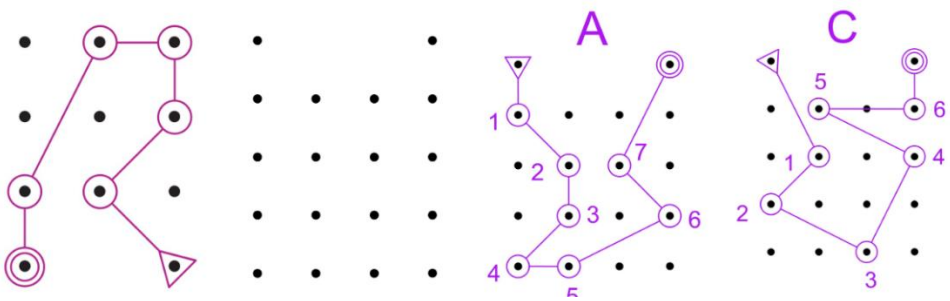
- **Implementation:**

1. Go through the cones together with the participants to make sure they understand and they have in mind not to hit the cones during the activity
2. Place participants behind the starting point in line, hand out maps at the starting point
3. Do not give the same course to consecutive starters
4. Participants runs their own course and touch the cones / flags in the right order
5. The goal goes back to the queue to wait for a new course
6. Remind participants to keep / rotate the map in the correct orientation at all times
7. Allow each participant to run a few easy courses first, then letting them run more difficult courses, or you can send them to the 18 cones grid

- **Variations:**

1. Use your imagination to design different courses and gridlines
2. The circular dot map may present an additional challenge (see image below)
3. Let participants design a new dot grid (pen and paper needed) in groups
4. Participants can design their own course on blank grid maps (pens and pencils needed)
5. Use different colors in the grid to help them visualize. Note: then use different colored cones
6. Put tape or artificial obstacles between the cones (also drawn with lines on the map)

(FIN) PISTESUUNNISTUS



(ENG) INDOOR SPRINT

- **Ages:** 6+ y/o
- **Location:** School yard
- **Duration:** 15-45 minutes
- **Aim:**

1. Map visualization and ability to convert map directions to movement
2. Orienting and rotating the map
3. Quick reactions, turns and directions
4. Combining map reading and running speed

- **Description:**

1. Participants navigate different orienteering courses in the school hall
2. The map is designed using the floor lines of the school hall

- **Equipment:**

1. Orienteering flags / ribbons for the controls, the start and the finish
2. Course maps of the school hall

- **Preparation:**

1. Print enough maps (at least 1x participant)
2. Choose the meeting place (start and finish) that you want; start and finish may be in different places
3. Mark the start (triangle) and finish (double circle) in red on each map
4. Design enough courses of different lengths and difficulty depending on the skill level of the participants
5. Put in position the orienteering flags / ribbons to the control points

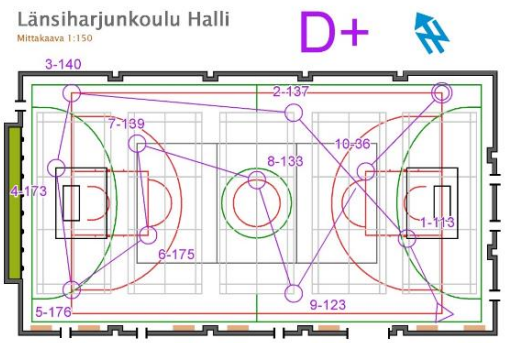
- **Implementation:**

1. Share a course map to each participant, NOT the same course for everyone
2. Go through the map and the floor lines together with the class
3. Send participants individually to run their course
4. After completing their course, participants will move from finish to start and receive a different map

- **Variations:**

1. Use your imagination to design courses, often the tracks are too easy
2. It is a good idea to plan enough variety so that participants do not just run against each other
3. You can also place obstacles along the school hall and draw them on the map (gym mats / benches / ropes, etc...)

(FIN) SISÄSPRINTTI



3-D

(ENG) CORRIDOR

- **Ages:** 9+ y/o
- **Location:** School yard / parkland
- **Duration:** 15-30 minutes
- **Aim:**

1. Outline map view and objects
2. Observing the map carefully
3. Quick decision making and speed

- **Description:**

1. Participants go to the start and take the map
2. Now they need to reach the finish following the 'corridor' on the map, without ending up running in the 'white' area, that means getting out of the 'corridor'
3. The students can use the compass to orientate the map but is not necessary

- **Equipment:**

1. One map per participant

- **Preparation:**

1. Choose your starting point and finish; they can be in different places but it's better if they are in the same location or at least next to each other
2. Select the route you want your students to navigate
3. Draw the starting point (triangle) and the corridor border lines; you can cover the rest of the map with white paper sheet and copy the final map with a scanner
4. Make sure that the map is readable inside the corridor; the space between the corridor walls should be at least 1 cm.
5. Protect the maps with map plastic or laminate them
6. Put an orienteering flag / ribbon at the start and the finish

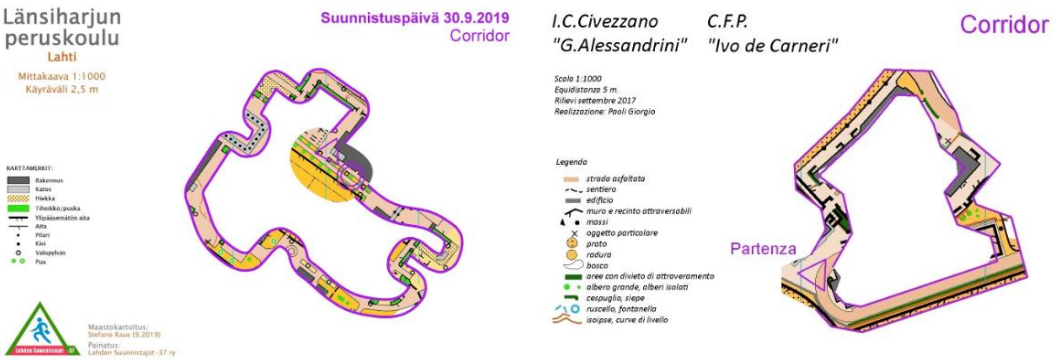
- **Implementation:**

1. Explain the exercise idea to the students, and divide them in pairs if you think it's better
2. Students / pairs can easily pile up, so it's best to put the fastest ones in advance to top
3. If the start and finish are in different places, make sure that at the finish there is somebody to receive the finishing participants

- **Variations:**

1. Prepare more than one corridor version, you can make some long ones and other shorter corridors
2. The exercise can be done that two students start at the same time, one going from start to finish and the other from finish to start; wins the first one that finishes the exercise

(FIN) VÄYLÄSUUNNISTUS/KORRIDOORI



4-A

(ENG) SCHOOL RACE

- **Ages:** 9+ y/o
- **Location:** School yard or parkland
- **Duration:** 30-40 minutes
- **Aim:**

1. Check what kids have learnt.
2. Have a final evaluation in a "real" race environment.

- **Description:**

1. In regular orienteering events, controls are visited in numbered order.
2. Orienteers doing the same course have different start times.
3. Interval start times will not work for a class of children when each is doing the same course, even with one-minute intervals.
4. With a class of 20, for example, and one child starting every minute, it will be 20 minutes before the last child starts.
5. This problem can be overcome by having a variety of courses, so each child does a different course.

- **Equipment:**

1. Set of 20 controls
2. Map of the school grounds showing the 20 control sites
3. A box to hold the maps
4. One printed map per kid, with a total of 3 or 4 different courses
5. One checking sheet per child

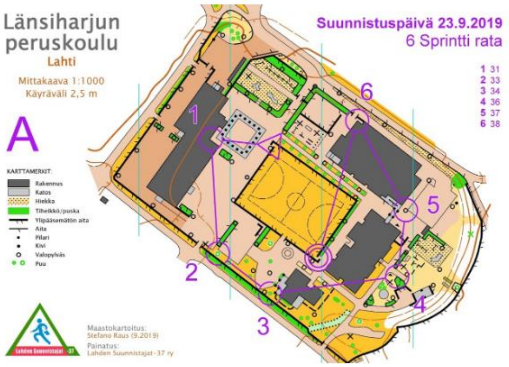
- **Implementation:**

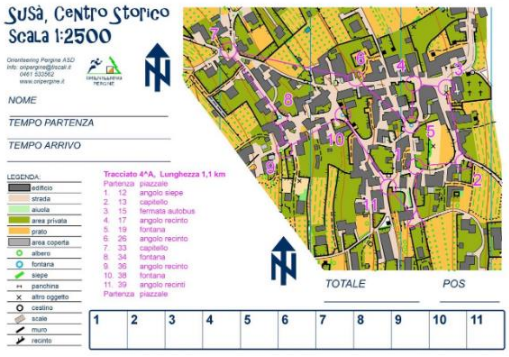
1. Tha class proceeds to the Start/finish place and line up behind the maps.
2. Each child should have a checking sheet.
3. Every 1 minute or every 2, one kid takes one map and starts his run.
4. When the course has been completed they return the map to the instructor that checks it wit the checking sheet.
5. Official results are written down.

- **Variations:**

1. Kids can set their own different courses.
2. Before the session the teacher puts out a set of controls, for example cards with a code marked on them, around the school grounds, taping the cards to suitable features.
3. These places are marked on a master map with the usual red circles.
4. Choose a start and finish place and mark it with the Start/Finish symbol.
5. At the start of the session put the master map showing the 20 control sites on the OHP/Wipeboard and each child can choose 6-8 of them to make their own course.

(FIN) KOULUKISA



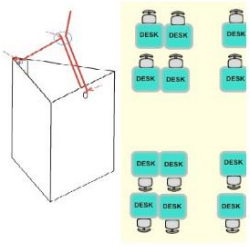


LESSON PLANS EXAMPLES

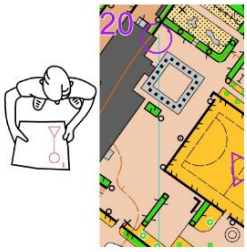
Language: FINNISH

Ideal lesson plans with suitable progression divided by age group.

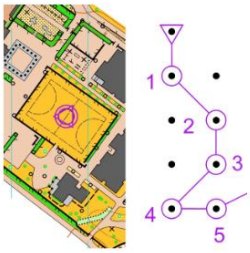
1-2 GRADE (5-7 HOURS)



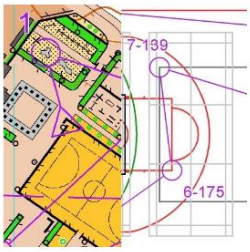
1. Paper O-Flags + Classroom Map



2. Thumbing Maps + There & Back



3. Hide & Seek + Cones Grid

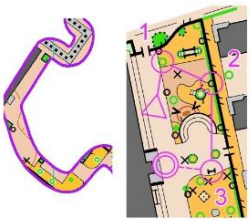


4. Sprint Courses or Indoor Sprint

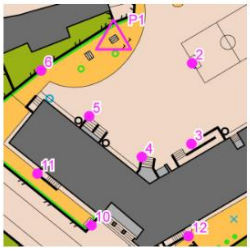
3-4 GRADE (5-7 HOURS)

1. Animal-O + School Symbols

2. Punch Them All + Memory

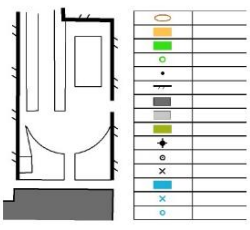


3. Corridor + Sprint Courses



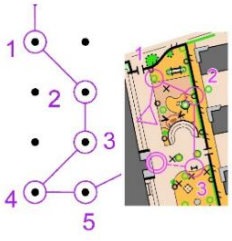
4. Trivia Course

5-6 GRADE (5-7 HOURS)

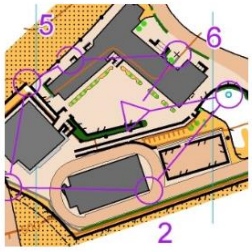


1. Map Survey + Legend Quiz

2. Map Pieces + Memory



3. Cones Grid + Sprint Courses



4. One-Man Relay