



## Undervisningsbeskrivelse

Termin	June 2024
Institution	EUC Syd
Uddannelse	
Fag og niveau	Mathematics -
Lærer	Jürgen Erler-Rohde (jer)
Hold	s23ib1

### Forløbsoversigt (14)

Forløb 1	Linear functions and modelling
Forløb 2	Screening "Grundforløb" and individual talks
Forløb 3	Numbers, Sets, and Venn diagrams
Forløb 4	Probability
Forløb 5	Triangle trigonometry
Forløb 6	Repetition
Forløb 7	Mid term test
Forløb 8	Algebra, radicals and surds, algebraic fractions
Forløb 9	Quadratic equations and inequalities
Forløb 10	Geometry, the circle, areas and volumes of geometric shapes
Forløb 11	Descriptive statistics
Forløb 12	Revision, all topics
Forløb 13	End of year test
Forløb 14	Revision based on test results

## Forløb 1: Linear functions and modelling

<b>Forløb 1</b>	Linear functions and modelling
<b>Indhold</b>	<p>Linear functions, equations, graphs.            Linear modelling of real-life situations.            Solving systems of two equations with two unknowns.            Solving systems of inequalities.            Use of technology such as the Graphical display calculator, TI-nspire CX II-T, and Geogebra.            Linear modelling of data, plots, regression models.            Linear programming.</p> <p>Noter:            We will do a diagnostic maths test today in class, so please brush up on your existing maths knowledge before class. The questions are about Numbers and Algebra. The test is 45 min. Notes, books, or calculator are not allowed.            Groups Of Four (<a href="http://transum.org">transum.org</a>) Gradient of a Line (<a href="http://transum.org">transum.org</a>)            Please do activity 2 in the little booklet about Linear modelling, which we started working on last Thursday. You have to create a story + graph to go with it. If you already did this together with your group, then you do not have to do it again. I look forward to hearing your creative stories!            Your homework is to figure out how to solve the problem with Kirill's 6 tonnes of potatoes. The function is <math>y = -2x + 10</math> and we want to know, when he is down to 6 tonnes. We solved this on the board in class, but your task is to do it on the calculator. So, graph both straight lines, and get the calculator to find the intersection between them.            Please bring the orange book to class today and watch these three videos: How to find where two lines intersect - YouTube <math>y=mx+c</math>, the trick to easily finding the equation of a line - GCSE maths revision - YouTube TI-Nspire - First Time Graphing - YouTube            Lots of homework, as agreed last Thursday. Please finish exercises 3,4, and 5 on the photocopy from class. Please finish "You should already know how to", p. 409 in the orange book. And do watch the three videos again :-)            Please make sure to finish the work with the two online pages (see the links from Thursday's lesson).            Please finish pages 1 and 2 of the little Animals, Insects, and Other puzzles booklet, that you worked with in class on Thursday.            Please watch the two videos: Solving simultaneous equations by elimination - YouTube Solving simultaneous equations by substitution - YouTube</p>
<b>Omfang</b>	19 lektioner / 19 timer
<b>Væsentligste arbejdsformer</b>	Individual work, group work, presentations at the board.

## Forløb 2: Screening "Grundforløb" and individual talks

<b>Forløb 2</b>	Screening "Grundforløb" and individual talks
<b>Indhold</b>	Noter: Please watch the videos (again) about substitution and elimination.
<b>Omfang</b>	7 lektioner / 7 timer
<b>Væsentligste arbejdsformer</b>	

### Forløb 3: Numbers, Sets, and Venn diagrams

<b>Forløb 3</b>	Numbers, Sets, and Venn diagrams
<b>Indhold</b>	Section 1.1, pages 20 to 37 in MYP Mathematics 4 & 5.  Noter: Please finish Exploration 2, page 28 in the orange book.
<b>Omfang</b>	6 lektioner / 6 timer
<b>Væsentligste arbejdsformer</b>	

## Forløb 4: Probability

<b>Forløb 4</b>	Probability
<b>Indhold</b>	Section 4.4, pages 136 to 156 in MYP Mathematics 4 & 5.  Noter: Please finish the worksheet from class last week. As agreed in class last week, please finish the work on pages 142 to 144 on probability trees.
<b>Omfang</b>	10 lektioner / 10 timer
<b>Væsentligste arbejdsformer</b>	

## Forløb 5: Triangle trigonometry

<b>Forløb 5</b>	Triangle trigonometry
<b>Indhold</b>	<p>Sections 7.4 in MYP Mathematics 4&amp;5, pages 256 to 269.</p> <p>Noter: Please finish the exercises 1 to 5, pages 147 + 148, and remember that you have to find a proof for the angle sum of 180 degrees in a triangle. Please submit the group-work power-point presentation about Applications of right-angled triangles. The folder closes at the start of this lesson! I expect the people, who were absent last Thursday, to submit individual presentations!</p>
<b>Omfang</b>	11 lektioner / 11 timer
<b>Væsentligste arbejdsformer</b>	

## Forløb 6: Repetition

<b>Forløb 6</b>	Repetition
<b>Indhold</b>	Equations, linear functions, binomial formulas
<b>Omfang</b>	4 lektioner / 4 timer
<b>Væsentligste arbejdsformer</b>	Review of the topics at the board, exercises and challenges, individual work, group work

## Forløb 7: Mid term test

<b>Forløb 7</b>	Mid term test
<b>Omfang</b>	4 lektioner / 4 timer
<b>Væsentligste arbejdsformer</b>	



## Forløb 8: Algebra, radicals and surds, algebraic fractions

<b>Forløb 8</b>	Algebra, radicals and surds, algebraic fractions
<b>Indhold</b>	Algebraic notation, expressions, substitution, collecting like terms, algebraic products Exponent laws The commutative, associative and distributive laws Algebraic expansion, binomial formulae Factorisation, perfect squares factorisation Properties of radicals, operations with radicals Algebraic fractions, operations with algebraic fractions
<b>Omfang</b>	8 lektioner / 8 timer
<b>Væsentligste arbejdsformer</b>	Presentation of the topics at the board, exercises and challenges, individual work, group work

## Forløb 9: Quadratic equations and inequalities

<b>Forløb 9</b>	Quadratic equations and inequalities
<b>Indhold</b>	<p>Power equations The null factor law Solving by factorisation and by completing the square The quadratic formula</p> <p>Noter: Remember to solve question 4 in the provided exercise on fractions and radicals. Try also to solve all of the questions in the provided exercise on systems of equations. Try to solve the inequalities that were handed out in class. See attached file. Try to solve all of the equations in question 1 in the paper that was handed out in class. Many of the equations can be solved within seconds. None of the equations should require more than a few minutes. See the attached file.</p>
<b>Omfang</b>	8 lektioner / 8 timer
<b>Væsentligste arbejdsformer</b>	Presentation of the topics at the board, exercises and challenges, individual work, group work

## Forløb 10: Geometry, the circle, areas and volumes of geometric shapes

<b>Forløb 10</b>	Geometry, the circle, areas and volumes of geometric shapes
<b>Indhold</b>	<p>Euclid's elements, proof of Pythagoras' theorem            Angle in a semi-circle theorem            Chords of a circle theorem            Radius-tangent theorem            Tangents from an external point theorem            Angle between a tangent and a chord theorem            Angle at the centre theorem            Angles subtended by the same arc theorem            Properties of triangles and quadrilaterals (parallelogram, rectangle, rhombus, square, trapezium, kite)            Perimeter and area of shapes            Surface area and volume formulae of solids (rectangular prism, cylinder, pyramid, cone, sphere)</p> <p>Noter:            Try to solve challenges 4 and 5 in the handout. See attached file.            Read chapter 7.3 in MYP Mathematics (orange book), pp. 240-253, in preparation.            Watch the following video clip. <a href="https://www.youtube.com/watch?v=R1HUtt-2oo7A">https://www.youtube.com/watch?v=R1HUtt-2oo7A</a></p>
<b>Omfang</b>	18 lektioner / 18 timer
<b>Væsentligste arbejdsformer</b>	Presentation of the topics at the board, exercises and challenges, individual work, group work

## Forløb 11: Descriptive statistics

<b>Forløb 11</b>	Descriptive statistics
<b>Indhold</b>	<p>Types of data (categorical and numerical), simple discrete data, grouped discrete data, continuous data</p> <p>Census and sample</p> <p>Organising data,</p> <p>displaying and describing data (frequency table, column graph, dot plot, pie chart)</p> <p>Distribution of data (mode, minimum, maximum, range, mean, median, quartiles, IQR, skewed, outliers)</p> <p>Box and whisker plot</p> <p>Cumulative frequency graphs</p> <p>Mean, variance and standard deviation</p> <p>Noter:</p> <p>Be ready to present some of your preliminary group work and considerations on collecting statistical data. I do not expect finished analyses and reports, but rather constructive suggestions on how the collection of necessary data can be carried out and what one should pay particular attention to.</p> <p>We have until now concentrated on ways to describe numerical discrete data. We will now be looking at ways to describe (1) grouped discrete data and (2) continuous data. In both cases, we will have to compile our observations in groups, so-called class intervals. In preparation, try to find real-life examples where compiling observations in intervals is appropriate.</p>
<b>Omfang</b>	14 lektioner / 14 timer
<b>Væsentligste arbejdsformer</b>	Presentation of the topic at the board, exercises and challenges, individual work, group work

## Forløb 12: Revision, all topics

<b>Forløb 12</b>	Revision, all topics
<b>Indhold</b>	Revision of all topics
<b>Omfang</b>	4 lektioner / 4 timer
<b>Væsentligste arbejdsformer</b>	Individual work, group work

### Forløb 13: End of year test

<b>Forløb 13</b>	End of year test
<b>Omfang</b>	2 lektioner / 2 timer
<b>Væsentligste arbejdsformer</b>	Individual work

## Forløb 14: Revision based on test results

<b>Forløb 14</b>	Revision based on test results
<b>Indhold</b>	Revision of topics based on the results of the end of term test  Noter: I am appointed censor in Kolding and will therefore not be present today. Plan for today: Go through the last test an extra time and use the attached solutions to understand how the questions can be solved. You are not required to be present at school during these two lessons.
<b>Omfang</b>	12 lektioner / 12 timer
<b>Væsentligste arbejdsformer</b>	Individual work