# **50 IWB Lessons: Standards Box**



## Put together by Spire Maths

https://spiremaths.co.uk/

Tal	ble of Contents	
Ov	verview	3
Fu	rther details	4
Tea N N N C	<b>aching Sessions</b> Mostly Number Mostly Algebra Mostly Shape and Space Mostly Statistics Calculus Other	<b>4</b> 4 4 5 5 5 5
Pro	ofessional Development	5
So	ftware	6
Ou	ir iPad and iPhone resources	10
Ed	lucation APPs from Apple	10
Ма	aths APPs for iPads and iPhones	11



#### Page 3 of 12

## **Overview**

IWB files created for ActivStudio and Smart Notebook to save you time creating your own. ActivInspire flipcharts can be made by using the ActivStudio files.



There are over 50 lessons in this resource, all with detailed lesson plans. They are for intended for pupils in secondary schools and FE colleges. These were all converted into interactive whiteboard format to save others doing this. Any Keele University links are now out of date but almost everything else contained within the IWB files.

Promethean ActivStudio flipchart files and	https://spiremaths.co.uk/ilim/
Smart Notebook files to match the	
teaching units, plus some of the software	
used in the files	
Information about the Improving Learning	Improving Learning in Mathematics
in Mathematics resource can be found on	resource
the National Centre for the Excellence in	
the Teaching of Mathematics portal	
Further information about using interactive	Board, Desk, Head information
whiteboards in a 'Board, Desk, Head'	Links being updated through 2015.
interactive way	
Improving Learning in Maths:	The booklet can be downloaded – details
Challenges and Strategies: booklet	are at https://spiremaths.co.uk/ilimcs/
gives the background to this project and	
the classroom research on which it is	
based.	
'Jigsaw' (Formulator Tarsia) software used	Found here. Appears to be PC version
in many of the resources – make your own	only.
with it	



#### Page 4 of 12

## **Further details**

Improving Learning in Mathematics (also referred to as the 'Standards Unit Box' or 'Standards Box') is a resource which at the time introduces a whole new approach to teaching and learning maths. Piloted and trialled in the post-16 sector, there are ideas for any maths teacher who wants to make lessons interesting and engaging for their students.

There are two main parts to the resource: Teaching sessions and Professional development sessions to help support the teaching sessions. The sessions cover mathematics topics at GCSE (mostly) and A level.

## **Teaching Sessions**

### **Mostly Number**

- N1 Ordering fractions and decimals
- N2 Evaluating statements about number operations
- N3 Rounding numbers
- N4 Estimating length, using standard form
- N5 Understanding the laws of arithmetic
- N6 Developing proportional reasoning
- N7 Using percentages to increase quantities
- N8 Using directed numbers in context
- N9 Evaluating directed number statements
- N10 Developing an exam question: number
- N11 Manipulating surds
- N12 Using indices
- N13 Analysing sequences

#### Mostly Algebra

- A1 Interpreting algebraic expressions
- A2 Creating and solving equations
- A3 Creating and solving harder equations
- A4 Evaluating algebraic expressions
- A5 Interpreting distance–time graphs with a computer
- A6 Interpreting distance–time graphs
- A7 Interpreting functions, graphs and tables
- A8 Developing an exam question: generalising patterns
- A9 Performing number magic
- A10 Connecting perpendicular lines
- A11 Factorising cubics
- A12 Exploring trigonometrical graphs
- A13 Simplifying logarithmic expressions
- A14 Exploring equations in parametric form

## Mostly Shape and Space

- SS1 Classifying shapes
- SS2 Understanding perimeter and area
- SS3 Dissecting a square





#### Page 5 of 12

- SS4 Evaluating statements about length and area
- SS5 Evaluating statements about enlargement
- SS6 Representing 3D shapes
- SS7 Transforming shapes
- SS8 Developing an exam question: transformations

#### **Mostly Statistics**

- S1 Ordering probabilities
- S2 Evaluating probability statements
- S3 Using probability computer games
- S4 Understanding mean, median, mode and range
- S5 Interpreting bar charts, pie charts, box and whisker plots
- S6 Interpreting frequency graphs, cumulative frequency graphs, box and whisker plots
- S7 Developing an exam question: probability
- S8 Using binomial probabilities

## Calculus

- C1 Linking the properties and forms of quadratic functions
- C2 Exploring functions involving fractional and negative powers of x
- C3 Matching functions and derivatives
- C4 Differentiating and integrating fractional and negative powers
- C5 Finding stationary points of cubic functions

#### Other

- O1 Moving from Eulerian graphs to route inspection (Chinese postman) postman) problem
- O2 Exploring equations of motion
- O3 Solving problems using Newton's Law

## **Professional Development**

• PD1 Getting started

#### **PowerPoint Presentations**

These are PowerPoint slides which introduce the ideas.

- 1 Getting started v3
- 2 Mistakes and misc v3
- 3 Task types v3
- 4 Managing discussion v3
- 5 Questioning v3
- 6 Formative assess v3



#### Page 6 of 12

## Software

Not all the software is connected with units above.

Coin races for S3



#### Dice races for S4





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#### Page 7 of 12

#### Number magic: Calendar

	Mon	Tues	Weds	Thurs	Fri	Sat	Sun	
	1	2	3	4	5	6	7	
	8	9	10	11	12	13	14	Total:
	15	16	17	18	19	20	21	Calculate
	22	23	24	25	26	27	28	
	29	30	31	Calendar				r 9 datas
The addicate moves the window to cover a dates. They add the 8 dates together and tell you the total. You immediately tell them the number in the middle of the window. How is the trick done? Try to make the trick more impressive.								

#### Number magic: Adding pairs





#### Number magic: Consecutive sums



#### Number magic; Routes





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#### Statistics 1 for S4

Raw scores	Change the <b>raw scores</b>	Frequency table Hide [F]			
Hide [R] Sort [T]	and watch what happens	Score 1 2 3 4 5 6   Frequency 0 2 3 1 1 5			
5	Statistics Hide [S]	Bar chart Hide [B]			
6 3 6 4 6 2 2	Mean 4.33 Median 4.5 Mode 6 Range 4	Leader Handler 12 11 10 9 8 7 6 5 4 3 2 1 0 12 12 11 10 9 8 7 6 5 4 3 2 1 0 1 1 1 1 1 1 1 1 1 1 1 1 1			
3		1 2 3 4 5 6 Score			

#### Statistics 2 for S5





## Our iPad and iPhone resources

Search for Jamtec on the AppStore. We also have other non-mathematics apps. Prices correct at 6 October 2015.



Age-ulator Free: Randomised £0.79



Directed Numbers £0.79: Equivalents £0.79: Multiplication Pairs £0.79



Maths Charts for Jenny Eather Free: Maths Charts for Jenny Eather (Deluxe version) £3.99



Grids4Maths £0.79: GeoDraw £0.79 (iPad only)

## **Education APPs from Apple**

Half price for volume purchase of some Education APPs



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http://jamtecstoke.co.uk/

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We've teamed up with Jenny Eather to bring her Maths Charts web resources to the iPad/iPhone. Try Maths Charts by Jenny Eather for free, then buy full Deluxe version for £3.99 (half this if you sign up for VPP with Apple and buy 20 or more copies).

**Volume Purchase** Programme (VPP) lets you buy Apple apps at discount rate of half price for 20 or more of the same app.

 $\frac{4}{5}$ 

 $\frac{4}{9}$ 

 $\frac{1}{7}$ 

Change format

4 5 6 7

 $\frac{3}{8}$ 

 $\frac{1}{9}$ 

 $\frac{3}{5}$ 

 $\frac{5}{8}$ 

<u>5</u> 9

 $\frac{3}{4}$ 

9

10

11 12

DIRECTED

High Scores

In school training can be arranged to support

Show Show

Show Show Show

Show

Show Show

Show

Sho

Maths Char 4 .... Decimals Decimals 24-hour tin metric units Ordering decimals Expanding decimals Adding decimals Subtracting decimals Multiplying decimals **Dividing decimals** Rounding decimals Decimals, perce Over 250 printable Maths Charts or maths posters suitable for interactive whiteboards, classroom displays, maths walls, display boards, student handouts, homework help, concept introduction and consolidation and other maths reference needs. Maths Pairs (£1.49) – three App  $\frac{24}{30}$ 3<u>5</u> 63 bundle: eligible for VPP discount <u>16</u> 36 Directed Number, Equivalents and Multiplication Pairs (or 79p each). 2<u>1</u> 56 2<u>7</u> 36 <u>8</u> 72

ICATION

Equivalent Fractions

Fractions and Decimals

72 ÷ 12

70 ÷ 7

21 ÷ 3

Fractions and Percentages

Percentages and Decimals

All Tables 2 - 12

All Tables 2 - 10

Reverse Tables 2 - 12

Reverse Tables 2 - 10

a= +1

-5 - (+2a - -4)

a = +3

+5 - -5a<sup>2</sup>

6

9

6

9

10

8

a = -4, b = 0

-5a + -5b

Learn Tables

a = -2

-3 - (+2 + +5a)

a = -4

+2a - -4

a= +2

 $-2a^2 + -4$ 

5

5

7

implementation. www.jamtecstoke.co.uk contact@jamtecstoke.co.uk

Contact and further details:

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<u>3</u> 21

ABE

Addition and Subtraction

Multiplication and Division

Mixed Questions

Substitution in Expressions

64 ÷ 8

 $40 \div 8$ 

 $72 \div 8$ 

40

64

 $\frac{24}{40}$ 

EQUIVALENT PAIRS

https://spiremaths.co.uk/

48 ÷ 8

 $20 \div 4$ 

81÷9