

Success@Arithmetic



Annual Report

2015 - 2016

all schools

based on data recorded by 30/09/2016



Edge Hill
University

INTRODUCTION

Success@Arithmetic is an Every Child Counts numeracy intervention for pupils in Key Stages 2 and 3 who need support to become fluent at arithmetic. It helps them to make accelerated progress and to catch up with their peers, becoming confident at calculation. There are two versions:

- Success@Arithmetic: Number Sense is for pupils who need support to understand the number system and develop fluency with number facts, most often in Key Stage 2;
- Success@Arithmetic: Calculation is for pupils who need support to understand and develop fluency with formal written methods, most often in upper Key Stage 2 and in Key Stage 3.

It is normally delivered to a small group of pupils by a Lead Teacher and a teaching assistant who have been trained together. The Lead Teacher makes a detailed assessment of each pupil's needs and then selects a series of appropriate 'Success@Arithmetic steps' to build a pathway of understanding, knowledge and skills that leads to confident calculation. A teaching assistant or the Lead Teacher then implements the steps with a small group of up to 3 pupils. They help the pupils to think and talk about their calculation methods and strategies, using and adapting the intervention's detailed session notes so that each pupil is challenged and can succeed.



Every lesson has four parts:

- Skills Practice - to reinforce a range of previously learned skills
- Teaching to Mastery - developing a secure grasp of essential calculation skills
- Mathematics in Context - applying learning to real-life situations & problems
- Self-Assessment - the pupils reflect on and talk about their own learning

Success@Arithmetic was devised by Edge Hill University as a part of its not-for-profit Every Child Counts programme, through which the University has supported over 6,000 schools to raise more than 140,000 children's achievement in mathematics and literacy. All Success@Arithmetic teachers and teaching assistants are trained and supported by local ECC Trainers, who in turn are trained and supported by Edge Hill University National Advisers.

This report is based on data submitted by schools to the University's online data collection and analysis system. Its purpose is to inform evaluations of the effectiveness of the intervention. The level of detail in the tables depends on the data supplied and the time of year. If you have any queries, please contact the ECC team.

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1. PARTICIPATION IN THE PROGRAMME

Success@Arithmetic is designed for pupils in Key Stages 2 and 3 who have difficulties with arithmetic.

**Table 1.1 Pupils receiving Success@Arithmetic support
all schools**

	SAA Calculation	SAA Number Sense	All Pupils	Percentage of Entrants
Entry				
Pupils who began a programme	520	106	626	
<i>School Year</i>				
Y9	10		10	2%
Y8	29		29	5%
Y7	4	5	9	1%
Y6	205	19	224	36%
Y5	198	43	241	38%
Y4	63	28	91	15%
Y3	5	7	12	2%
Y2		4	4	1%
<i>other or not reported</i>	6		6	1%
Exit				
Pupils who completed a programme	388	78	466	74%
Pupils who had not completed a programme	132	28	160	26%

Entered: all pupils who began a programme

Completed: all pupils who completed a programme and for whom entry and exit outcomes were reported

**Table 1.2 Schools providing Success@Arithmetic support
all schools**

	SAA Calculation	SAA Number Sense	Either
Schools	77	18	83
Teachers	96	23	106
Local Authorities	41	15	44

all schools that recorded entry data for at least one pupil

2. LESSONS

Pupils normally have about 3 lessons a week for at least 8 weeks, in groups of up to 3. The length of the programme depends on the objectives set by the teacher and on the pupils' rate of progress. Some pupils may receive additional lessons to help them to reinforce their learning.

**Table 2.1 Length of programme and lessons received
all schools**

Success@Arithmetic: Calculation	
<i>Number of pupils</i>	388
Average calendar weeks	17.1
Average calendar months	3.9
Average number of lessons	24.9
- delivered by a teacher	4.3
- delivered by a teaching assistant	20.6
Average group size	3.1
Success@Arithmetic: Number Sense	
<i>Number of pupils</i>	78
Average calendar weeks	20.0
Average calendar months	4.6
Average number of lessons	36.1
- delivered by a teacher	2.9
- delivered by a teaching assistant	33.2
Average group size	2.7
all pupils	
<i>Number of pupils</i>	466
Average calendar weeks	17.6
Average calendar months	4.0
Average number of lessons	26.8
- delivered by a teacher	4.1
- delivered by a teaching assistant	22.8
Average group size	3.0

pupils who completed a programme and for whom the programme length or number of lessons was reported

3. TEST OUTCOMES

Schools are encouraged to test pupils' mathematics when they enter and exit from the programme. Entry testing helps to identify their initial attainment and learning needs and exit testing provides an objective measure of the progress that they have made.

TABLE 3.1 shows outcomes calculated by schools or approximate outcomes calculated by Edge Hill University based on raw data reported by schools.

Age	<i>A pupil's chronological age at the time of their entry and exit tests.</i>
Number Age	<i>A Number Age is the average age of pupils across the country who achieved the same test score as the pupil.</i>
Standard Score	<i>A Standard Score compare's a pupil's test score with those of other pupils of the same age across the country. A Standard Score close to 100 is 'average' and 84% of all pupils have a Standard Score of at least 85.</i>
Raw Test Score	<i>A pupil's Raw Test Score is the number of test questions that they answered correctly. It is reported only where a Number Age or Standard Score could not be calculated.</i>

**Table 3.1 Test outcomes
all schools**

	<i>Number of Pupils</i>	Entry Average	Exit Average	Gain Average
Success@Arithmetic: Calculation				
Age (months)	388	122.5	126.4	3.9
Number Age (months)	371	105.5	119.4	13.9
Standard Score	367	88.5	96.7	8.2
Raw Test Score	12	19.3	29.8	10.6
Success@Arithmetic: Number Sense				
Age (months)	78	112.8	117.4	4.6
Number Age (months)	78	102.1	117.2	15.1
Standard Score	78	89.8	101.8	11.9
all pupils				
Age (months)	466	120.9	124.9	4.0
Number Age (months)	449	104.9	119.0	14.1
Standard Score	445	88.8	97.6	8.8
Raw Test Score	12	19.3	29.8	10.6

pupils who completed a programme and for whom entry and exit scores were reported

4. ATTITUDES TO MATHEMATICS

When pupils have completed the programme, their class teachers can assess the attitudes that they show in class towards mathematics. The teachers use an Every Child Counts Attitude Survey to report on 8 aspects of each pupil's attitude, such as taking an active part in lessons, concentration and willingness to 'have a go' without asking for help. For each aspect, they decide whether the pupil is now more positive, about the same, or less positive than before taking part in Success@Arithmetic.

**Table 4.1 Changes in pupils' attitudes towards mathematics
(number of pupils)
all schools**

	Pupils	Percent
<i>Number of pupils</i>	175	
Pupils who were more positive after the programme	157	90%
Pupils whose attitudes did not change	15	9%
Pupils who were less positive after the programme	3	2%
Net gain	154	88%

pupils who completed a programme and for whom an Attitude Survey was reported

**Table 4.2 Changes in pupils' attitudes towards mathematics
(number of aspects)
all schools**

	Aspects
Average number of aspects in which pupils became more positive	4.6
Average number of aspects in which pupils' attitudes did not change	3.3
Average number of aspects in which pupils became less positive	0.1
Net gain	4.5

pupils who completed a programme and for whom an Attitude Survey was reported

5. PUPIL CHARACTERISTICS

TABLE 5.1 analyses pupils' participation and outcomes in relation to their background characteristics. It is designed to help schools to monitor the progress of relevant vulnerable groups.

Table 5.1 Pupils' background characteristics and key data all schools

	----- Pupils -----		--- Programme ---		----- Progress -----				
	NUMBER	AGE	LENGTH	LESSONS	NUMBER	AGE	GAIN	ATTITUDE	
	%	months	months		Entry	Exit months		Improved proportion	
All pupils	466		120.9	4.0	26.8	104.9	119.0	14.1	90%
School Year									
Y9	9	2%	164.8	2.0	16.1	109.7	124.2	14.6	4 / 9
Y8	19	4%	152.3	2.6	21.6	107.6	117.3	9.6	89%
Y7	8	2%	143.0	3.6	27.5	105.3	111.1	5.9	2 / 6
Y6	164	35%	127.1	4.3	25.5	109.5	123.1	13.5	84%
Y5	176	38%	117.4	3.8	26.8	104.7	118.9	14.3	96%
Y4	70	15%	105.9	4.8	32.4	98.2	115.6	17.5	100%
Y3	12	3%	91.6	4.6	30.6	93.3	106.6	13.3	2 / 2
Y2	4	1%	74.0	2.1	23.8	68.3	83.8	15.5	-
Gender									
Boy	213	46%	121.5	4.0	27.3	105.0	119.9	14.9	92%
Girl	249	54%	120.3	4.0	26.5	104.9	118.4	13.5	88%
Pupil Premium Entitlement									
Yes	167	38%	122.1	4.1	28.3	104.8	119.7	14.8	90%
No	272	62%	120.8	4.0	25.8	106.0	119.5	13.5	90%
Special Educational Need Status									
Yes	113	26%	130.0	3.7	28.6	103.8	116.3	12.5	80%
No	323	74%	118.7	4.2	26.5	106.2	121.0	14.9	94%
First Language									
English	409	91%	120.7	4.1	27.0	104.9	119.1	14.2	91%
Other	41	9%	122.8	3.7	26.0	104.8	118.8	14.0	81%
Season of Birth									
Autumn	130	28%	125.8	4.0	27.0	106.3	120.5	14.2	88%
Spring	160	35%	120.6	4.2	26.1	104.6	119.3	14.7	91%
Summer	172	37%	117.3	3.9	27.5	104.3	117.8	13.5	90%

pupils who completed a programme and for whom relevant data was reported