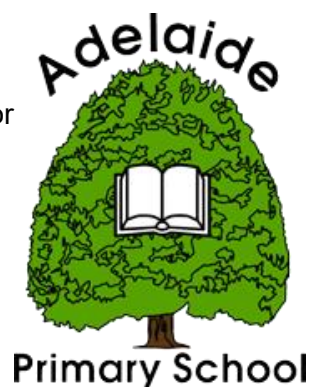


## Pupil premium strategy statement

This statement details our school's use of pupil premium (and recovery premium for the 2022 to 2023 academic year) funding to help improve the attainment of our disadvantaged pupils.

It outlines our pupil premium strategy, how we intend to spend the funding in this academic year and the effect that last year's spending of pupil premium had within our school.



### School overview

Detail	Data
School name	Adelaide Primary
Number of pupils in school	448 incl nursery
Proportion (%) of pupil premium eligible pupils	201 children
Academic year/years that our current pupil premium strategy plan covers ( <b>3 year plans are recommended</b> )	2021/22 to 2024/25
Date this statement was published	September 2022
Date on which it will be reviewed	July, 2023
Statement authorised by	Kirsten Bradley (Head)
Pupil premium lead	Suzanne Adkinson
Governor / Trustee lead	Diane Hamilton (Governor)

### Funding overview

Detail	Amount
Pupil premium funding allocation this academic year	£271,460
Recovery premium funding allocation this academic year	£28,420
Pupil premium funding carried forward from previous years (enter £0 if not applicable)	£0
<b>Total budget for this academic year</b> If your school is an academy in a trust that pools this funding, state the amount available to your school this academic year	£299,880

## Part A: Pupil premium strategy plan

### Statement of intent

Adelaide Primary school is located within Kingston upon Hull which remains one of the most deprived Local Authorities nationally. Eligibility for free school meals remains high. 92% of pupils live in the 5% most deprived households nationally (IDACI 2021).

Our overarching aim is to close the attainment gap between our disadvantaged pupils and others within school and nationally so that every pupil in our school has the same life chances and can be the best they can be.

The causes of disadvantage are complex and entrenched and many lie beyond school. However, with the right strategies, underpinned by research, alongside a rich and engaging curriculum, we believe that we can make a difference.

We have a wealth of information and data at individual pupil level and it is important that this is used to understand the challenges and needs of our disadvantaged pupils. We should avoid making generalisations.

Our aim is that all pupils irrespective of background and barriers to learning, reach their full potential and become fulfilled and healthy individuals who are able to flourish and contribute positively to society now and in later life as adults.

Our guiding principles for allocating our funding align with those identified in [Education Endowment Foundation - Using your Pupil Premium Funding effectively](#)

1. Schools can make a difference in narrowing attainment gaps – this means all staff in our school know who our disadvantaged pupils are and work collaboratively to narrow the gaps.
2. Evidence-informed teachers and leaders must combine research findings with professional expertise to make decisions – we will adopt approaches which evidence shows has been effective in other schools and which we believe are transferrable into our school
3. Quality First Teaching helps every child – quality first teaching must be at least good at all times for all children – this means investing time in supporting and developing staff at all stages in their careers
4. Less is more – we will focus on a small number of carefully chosen priorities identified through diagnostic assessment
5. Whilst we understand that pupils who are eligible for the Pupil Premium are more likely to be 'low-attainers', tackling the consequences of deprivation and using our funding effectively also means ensuring that middle and higher attaining pupils continue to achieve well and fulfil their potential

## Challenges

This details the key challenges to achievement that we have identified among our disadvantaged pupils.

Challenge number	Detail of challenge
1	Speech, language and communication - baseline entry to FS2 shows that most children are not school ready on entry to Adelaide Primary. Many have limited oral language skills and vocabulary and have had little opportunity to enjoy books. In-house evaluation shows that this continues beyond KS1.
2	In school assessments, including analysis of teacher assessment data, discussions with pupils and work scrutiny show that there are gaps in achievement at the greater depth standard in reading, writing and maths between our disadvantaged pupils and others in school. This is evident on entry and continues into Y6.
3	Whilst pupils are keen to be back at school and COVID restrictions have lifted, the lack of routine and face to face teaching continues to have impacted on pupils' well-being and resilience. In-schools assessments show that this is most evident amongst our disadvantaged pupils which is also reflected in national studies and data.
4	<p>Attendance and punctuality</p> <ul style="list-style-type: none"> <li>• Whilst attendance overall is broadly in line with NA (95%) there are disparities between our disadvantaged pupils and their peers:               <ul style="list-style-type: none"> <li>○ Overall attendance – Disadv 93.8% All 94.6%</li> <li>○ Persistent absence – Disadv 16.2% All 14.7%</li> </ul> </li> </ul>
5	Capacity of parents to support learning is limited. Many of our parents are not fluent English speakers and did not attend education settings in the UK. Many parents had poor experiences of education and are not able to support their children. We have high numbers of families who live in poor, overcrowded housing conditions, and access to technology and books is limited in some households.
6	Pupils have limited experiences outside of school. The vast majority do not attend out of school activities or visit places of interest with their families.

## Intended outcomes

This explains the outcomes we are aiming for **by the end of our current strategy plan**, and how we will measure whether they have been achieved.

Intended outcome	Success criteria by 2024-2025
<b>Curriculum in place which builds on prior learning and is accessible to and engages all learners</b>	<ul style="list-style-type: none"> <li>Quality of teaching is at least good in all classes over time (internally and externally moderated through a range of statutory and non-statutory arrangements).</li> <li>Assessment, observations, work scrutiny and discussions with pupils demonstrate high levels of engagement amongst all pupils and no significant difference between disadvantaged pupils and others in school</li> <li>Assessments confirmed by external assessment data and by external monitoring of the school</li> </ul>
<b>Improved outcomes in GLD, reading, writing, mathematics and phonics</b>	<ul style="list-style-type: none"> <li>Focused observational assessments show significantly improved oral language amongst all pupils, including disadvantaged pupils. This evidence is confirmed via work scrutiny, interviews with pupils and formal external assessments.</li> <li>% of disadvantaged pupils achieving GLD is in line with the average for all pupils nationally</li> <li>% of disadvantaged pupils reaching required standard in PSC remains above NA for all pupils</li> <li>At end of KS1, % of disadvantaged pupils reaching EXS &amp; GDS in reading, writing and mathematics is in line with NA for all pupils nationally</li> <li>At end of KS2 % of disadvantaged pupils reaching EXS &amp; GDS in reading, writing, mathematics and RWM is in line with NA for all pupils nationally</li> </ul> <p>On an annual basis we will aspire to:</p> <ul style="list-style-type: none"> <li>Reach targets agreed with Trust at EXS and GDS at the end of each Key Stage</li> <li>Move closer to NA for GLD for all children whilst continuing to close the gap between disadvantaged pupils and others nationally</li> <li>Gap between disadvantaged and other pupils narrows when compared with previous year's outcomes across all measures</li> </ul>
<b>Improved well-being, social and emotional development, inclusion</b>	<p>High levels of inclusion/well-being is exemplified by:</p> <ul style="list-style-type: none"> <li>Qualitative data from pupil voice surveys</li> <li>Qualitative data from range of parental surveys</li> <li>Reduction in number of behavioural incidents recorded in CPOMS</li> <li>Analysis of CPOMS data shows positive impact of schools support and signposting to external partner agencies</li> <li>High levels of engagement in out-of-school activities by disadvantaged pupils (registers and pupil feedback)</li> <li>High levels of parental engagement in activities and workshops</li> </ul>
<b>Improved attendance and punctuality</b>	<ul style="list-style-type: none"> <li>The overall absence rate for all pupils is in line with national average</li> <li>The attendance gap between disadvantage pupils and others is in line with national average</li> <li>The % of all pupils who are persistently absent is in line with national average</li> <li>The gap between disadvantaged pupils and others in school is in line with NA</li> </ul> <p>On an annual basis we will aspire to:</p> <ul style="list-style-type: none"> <li>Continue to narrow the absence gap between disadvantaged pupils and others</li> <li>Narrow the gap between disadvantaged pupils and others in terms of PA</li> <li>Number of pupils late and late after close of registration reduces</li> </ul>

### Activity in this academic year

This details how we intend to spend our pupil premium (and recovery premium funding) **this academic year** to address the challenges listed above.

### Teaching (incl CPD, recruitment and retention etc)

**Budgeted cost: £115,691**

Activity	Evidence that supports this approach	Challenge number/s addressed
<p><b>CPD for all staff:</b></p> <ul style="list-style-type: none"> <li>• Access in-house, Trust-wide, and national training with a focus on improving QfT in early reading and phonics, writing and most able. (ECERS, WRM, ABC does) (£8000)</li> <li>• Ensure that staff are aware of challenges / barriers on individual pupil level through robust pupil progress meetings and phase meetings</li> <li>• All relevant staff (including new and support staff) receive in-house core training to deliver the phonics scheme effectively, with a focus on supporting early career stage teachers</li> <li>• Whole school CPD and bespoke support for identification of most able and what effective 'challenge' looks like</li> <li>• To support development of high-quality provision - QfT – including accurate assessment, effective feedback, bespoke support, coaching, modelling. Release of DHT (1.0fte) (£75,000)</li> <li>• Release of SLT members and in-house experts to provide support and model best practice through coaching/mentoring programme to further improve quality first teaching with a focus on high impact, evidence based approaches* - focus on quality interaction with chn in EYFS, the teaching of phonics, reading comprehension and writing:</li> <li>• Phase leaders (0.1fte), phonics &amp; early reading (0.1fte), reading (0.1fte) writing (0.1fte) and mathematics leads (0.1fte) (£31,091)</li> </ul> <p>Release of SENCo (0.6 fte) to support less experienced staff on meeting needs of all pupils with focus on those with SEND/ vulnerable (£44,000)</p> <p>All relevant staff (including new and support staff) receive training and bespoke support from Bridge SLT to deliver Language in Colour and Phonological Awareness as part of QfT. (£22,000)</p> <p><b>Total: £87,091</b></p>	<ul style="list-style-type: none"> <li>• <a href="#">Education Endowment Foundation - Diagnostic Assessment - Evidence Insights</a></li> <li>• <a href="#">Education Endowment Foundation - Gathering and interpreting data (From A school's guide to implementation)</a></li> <li>• EEF state that with the information diagnostic assessments provide, teachers may: <ul style="list-style-type: none"> <li>○ decide to adjust the level of challenge of activities</li> <li>○ reteach specific concepts or topics</li> <li>○ adjust curriculum content in the medium or long term</li> <li>○ provide pupils with feedback through which they can address their own areas for improvement</li> <li>○ decide which pupils may need additional, targeted academic support</li> </ul> </li> </ul>	<p>2</p>

<ul style="list-style-type: none"> <li>• Purchase additional resources for <a href="#">DfE accredited Systematic Synthetic Phonics Programme</a> (RWI) to secure consistently good phonics teaching (£5000)</li> <li>• Subscription to online training related to the SSP (£1800)</li> <li>• Access to accredited Ruth Miskin RWI Training (£1800)</li> </ul> <p><b>Total: £8,600</b></p>	<ul style="list-style-type: none"> <li>• Very strong evidence base which suggests the positive impact on early reading skills (though not necessarily comprehension), particularly for disadvantaged pupils</li> <li>• <a href="#">DfE Reading Framework - Teaching the foundations of literacy</a></li> <li>• <a href="#">Education Endowment Foundation T&amp;L Toolkit - Phonics</a></li> </ul>	1,2
<ul style="list-style-type: none"> <li>• Purchase of resources / manipulative at class level for mathematics to help pupils hone their mathematical thinking skills and connect ideas and integrate their knowledge so that they gain a deep understanding of mathematical concepts.</li> </ul> <p><b>Total: £2000</b></p>	<ul style="list-style-type: none"> <li>• <a href="#">Education Endowment Foundation - Improving mathematics in the Early Years and Key Stage 1</a></li> <li>• <a href="#">Education Endowment Foundation - Improving mathematics in Key Stages 2 and 3</a></li> <li>• EEF state that manipulatives can be powerful tools to help pupils engage with mathematical ideas – however, they are just tools and need to be used purposefully and appropriately to have an impact</li> </ul>	1,2

### Targeted academic support (for example, tutoring, one-to-one support structured interventions)

**Budgeted cost: £115,000**

Activity	Evidence that supports this approach	Challenge number/s addressed
<p>Early Years communication and oral language intervention Teaching Assistant 0.4 (£11,700) Teacher 0.1fte (£5900)</p> <p><b>Total - £17,600</b></p>	<ul style="list-style-type: none"> <li>• <a href="#">Education Endowment Foundation Early Years Toolkit - communication and language approaches</a></li> <li>• Communication and language approaches consistently show positive benefits for young children's learning, including their spoken language skills, their expressive vocabulary and their early reading skills. It is suggested that the benefits are greater for children from disadvantaged backgrounds</li> <li>• <a href="#">Education Endowment Foundation - T&amp;L Toolkit - Oral Language Interventions</a></li> <li>• Oral language interventions can be used to provide additional support to pupils who are behind their peers in oral language development, the targeted use of approaches may support some disadvantaged pupils to catch up with peers, particularly when this is provided one-to-one.</li> <li>• EEF state that interventions led or supported delivered trained teaching assistants have broadly the same impact as if delivered by a teacher.</li> </ul>	2,3



<p><b>Phonics catch-up / intervention:</b> Purchase of resources to support Fast Track tutoring to secure accelerated catch up (RWI) (£1200)</p> <p>YR, Y1, Y2, lowest 20% KS2 – 1:1 or small group by trained teaching assistants x 6 (£62,500)</p> <p>Teacher to oversee (0.1) (£6400)</p> <p>Daily 1:1 fluency read for targeted children (£4200)</p> <p>Year 6 after school tuition, X3 groups with HLTA (£1800)</p> <p><b>Total - £74,900</b></p>	<ul style="list-style-type: none"> <li>• <a href="#">DfE Reading Framework - Teaching the foundations of literacy</a></li> <li>• <a href="#">Education Endowment Foundation - T&amp;L Toolkit - Small Group Tuition</a></li> <li>• <a href="#">Education Endowment Foundation - T&amp;L Toolkit - One to One Tuition</a></li> <li>• Studies comparing one to one tuition with small group tuition show mixed outcomes. The variability could be attributed to the quality of teaching as opposed to group size. Evidence suggests that tuition should be additional to but explicitly linked with normal teaching and that teacher monitoring of progress is beneficial. Where tuition is delivered by volunteers or TAs, the evidence suggests that training and the use of structured programmes is key.</li> <li>• EEF state that schools should carefully consider how teaching assistants are used to support learners from disadvantaged backgrounds. There is evidence that when a teaching assistant is used to support specific pupils routinely in the classroom, the teacher may interact less with these pupils, meaning that those who need additional teacher monitoring and support may not receive it. Therefore, additional care should be given to how teachers respond to the deployment of teaching assistants and who they are supporting, particularly for previously low attaining or disadvantaged pupils.</li> <li>• However, well-evidenced teaching assistant interventions can be targeted at pupils that require additional support and can help previously low attaining pupils overcome barriers to learning and 'catch-up' with previously higher attaining pupils.</li> <li>• Schools should carefully monitor teaching assistant interventions to ensure they are well-delivered, so that pupils receive the large benefits of structured interventions and not the limited impact of general deployment.</li> </ul>	2,3
<p>Small group tutoring Y6 – mathematics</p> <p>Teacher 2 x weekly after school sessions (£3700)</p> <p>HLTA 0.3 sessions (£7800)</p> <p>Y6 teacher 0.2 (£11,000)</p> <p><b>Total - £22,500</b></p>	<ul style="list-style-type: none"> <li>• <a href="#">Education Endowment Foundation - Improving mathematics in Key Stages 2 and 3</a></li> <li>• <a href="#">Education Endowment Foundation - T&amp;L Toolkit - Small Group Tuition</a></li> <li>• EEF state that small group approaches can support pupils to make progress by providing intensive, targeted academic support to those with low prior attainment or at risk of falling behind as it allows for greater levels of interaction and feedback. This helps pupils overcome barriers to learning and increases access to the curriculum.</li> <li>• It is important to ensure that tuition is informed by accurate diagnostic assessment and delivered by trained staff.</li> </ul>	2,3

**Wider strategies (for example, related to attendance, behaviour, wellbeing)**

**Budgeted cost: £85,600**

Activity	Evidence that supports this approach	Challenge number/s addressed
<p><b>Well-being, social and emotional development, inclusion:</b></p> <ul style="list-style-type: none"> <li>• Develop inclusion Team led by DHT (0.2fte) (£17,000)</li> <li>• Well-being worker (37 hours) with clear job description, role and responsibilities incl attendance, safeguarding and ELSA (£27,500)</li> <li>• Identified support staff time-table for specific support / programmes ie Seeing Red, Nurture Talk (£4,000)</li> </ul> <p><b>Total £48,500</b></p>	<ul style="list-style-type: none"> <li>• <a href="#">Education Endowment Foundation - T&amp;L Toolkit - Social and Emotional Learning</a></li> <li>• Evidence suggests that children from disadvantaged backgrounds have, on average, weaker SEL skills at all ages than their more affluent peers. These skills are likely to influence a range of outcomes for pupils: lower SEL skills are linked with poorer mental health and lower academic attainment.</li> <li>• SEL interventions in education are shown to improve SEL skills and are therefore likely to support disadvantaged pupils to understand and engage in healthy relationships with peers and emotional self-regulation, both of which may subsequently increase academic attainment.</li> <li>• Schools should carefully consider how targeted approaches are deployed to support pupils with additional social or emotional needs. SEL needs will be based on a variety of factors that may not correspond to academic progress and should be carefully monitored.</li> <li>• <a href="#">Education Endowment Foundation - T&amp;L Toolkit - Meta Cognition and Self-Regulation</a></li> <li>• Evidence to suggest that disadvantaged pupils are less likely to use metacognitive and self-regulatory strategies without being explicitly taught these strategies. Explicit teaching of metacognitive and self-regulatory strategies could therefore encourage such pupils to practise and use these skills more frequently in the future. With explicit teaching and feedback, pupils are more likely to use these strategies independently and habitually, enabling them to manage their own learning and overcome challenges themselves in the future.</li> </ul>	<p>2,3,4</p>
<p><b>Raising profile of attendance:</b></p> <ul style="list-style-type: none"> <li>• Strong attendance ethos led from the top with clear lines of accountability</li> <li>• Safeguarding, EWB and attendance worker – 0.4 (£9,100)</li> <li>• Admin attendance officer – 0.4 (£10,500)</li> <li>• Clear policies – technical and legal compliance</li> <li>• Benchmark attendance</li> <li>• Regular monitoring and analysis – use of correct codes</li> <li>• Robust follow up of absence</li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">DfE - School attendance guidance</a></li> <li>• <a href="#">DfE - Improving school attendance - support for schools and local authorities</a></li> <li>• DfE guidance based on cases studies with school with high levels of attendance.</li> <li>• Pupils need to attend school regularly to benefit from their education. Missing out on lessons leaves children vulnerable to falling behind. Children with poor attendance tend to achieve less in both primary and secondary school. (DfE)</li> <li>• EEF are currently undertaking research which aims to be the basis for a report that provides an overview on the effectiveness of interventions on school attendance behaviours and the characteristics of these interventions.</li> <li>• <a href="#">EEF attendance intervention rapid evidence assessment</a></li> </ul>	<p>4</p>



<ul style="list-style-type: none"> <li>Engagement with partner agencies</li> <li>Good practice sought and shared</li> <li>Use of DfE Attendance resources / strategies for improving attendance</li> <li>Build positive relationships with parents</li> <li>Intervene and support early with focus on support not punitive measures</li> </ul> <p>Total £19,600</p>		
<ul style="list-style-type: none"> <li>Breakfast Club (staff and food) for disadvantaged pupils to encourage attendance and punctuality (£7500 staff for B Club / £10,000 B Club food)</li> </ul> <p>Total £17,500</p>		

**Total budgeted cost across all priorities:**

- £115,691 + £115,000 + £85,600 = £316,291

**Part B: Review of outcomes in the previous academic year**

**Pupil premium strategy outcomes**

This details the impact that our pupil premium activity had on pupils in the 2021 to 2022 academic year.

<b>Early Years Foundation Stage</b>						
Good level of development:						
All chn	Disadvantaged	In-school gap	National all 2019	National others	Disadvantaged gap to national others	
60%	69%	+9%	72%	tbc	tbc	

<b>Phonics Screening Check</b>						
	All chn	Disadvantaged	In-school gap	National all 2022	National others	Disadvantaged gap to national others
<b>Year 1</b>	79%	79%	+0%	75%	tbc	tbc
<b>Year 2</b>	90%	84%	-6%	87%	tbc	tbc

<b>Attainment and progress in Reading</b>						
End of Key Stage 1						
READING	All chn	Disadvantaged	In-school gap	National all 2022	National others	Disadvantaged gap to national others
<b>EXS+</b>	66%	52%	-14%	67%	72%	-20%
<b>GDS</b>	12%	13%	+1%	18%	21%	-8%

### End of Key Stage 2

READING	All chn	Disadvantaged	In-school gap	National all 2022	National others	Disadvantaged gap to national others
EXS+	73%	70%	-3%	74%	80%	-10%
GDS	17%	16%	-1%	28%	32%	-16%

### Attainment and Progress in Writing

#### End of Key Stage 1

WRITING	All chn	Disadvantaged	In-school gap	National all 2022	National others	Disadvantaged gap to national others
EXS+	60%	48%	-12%	58%	63%	-15%
GDS	9%	10%	+1%	8%	10%	+0%

#### End of Key Stage 2

WRITING	All chn	Disadvantaged	In-school gap	National all 2022	National others	Disadvantaged gap to national others
EXS+	78%	76%	-2%	69%	75%	+1%
GDS	12%	8%	-4%	13%	16%	-8%

### Attainment and Progress in Mathematics

#### End of Key Stage 1:

MATHS	All chn	Disadvantaged	In-school gap	National all 2022	National others	Disadvantaged gap to national others
EXS+	64%	55%	-9%	68%	73%	-18%
GDS	14%	10%	-4%	15%	18%	-8%

#### End of Key Stage 2

MATHS	All chn	Disadvantaged	In-school gap	National all 2022	National others	Disadvantaged gap to national others
EXS+	73%	68%	-5%	71%	78%	-10%
GDS	19%	10%	-9%	22%	27%	-17%

### Attendance, absence and persistent absence

	All chn	Disadvantaged	In-school gap	National all 2022	National others	Disadvantaged gap to national others
All	94%	94%	+0%	tbc	tbc	tbc
PA	22%	19%	+3%	tbc	tbc	tbc

### Well-being and emotional health of pupils post Covid

- Relationships developed with partner agencies have continued this year.
- Planned actions took place or were adapted in response to restrictions/ needs of individuals and classes.
- Parent communication and engagement was able to move from remote/virtual to face to face. Opportunities for parents to be in school was still limited
- 1:1 work for ELSA was in place for targeted pupils.
- Group work for social engagement was in place for targeted pupils.
-

## Externally provided programmes

Please include the names of any non-DfE programmes that you purchased in the previous academic year. This will help the Department for Education identify which ones are popular in England

Programme	Provider
n/a	

## Service pupil premium funding (optional)

For schools that receive this funding, you may wish to provide the following information:

Measure	Details
How did you spend your service pupil premium allocation last academic year?	n/a
What was the impact of that spending on service pupil premium eligible pupils?	n/a

## Further information (optional)

### Additional activity

Our pupil premium strategy was supplemented by additional activity that was not being funded by pupil premium or recovery premium. That will include:

- Engagement with English Hub and access to funding to support the effective implementation of a SSP
- Engagement with Maths Hub to access best practice CPD for Early Years and KS1
- Developing reading comprehension strategies focusing on the understanding of written text. This will form part of whole class teaching and then practiced in small groups / pairs.
- Extending the range of extra-curricular provision to support the well-being, behaviour and attendance of our most vulnerable pupils. This will supplement the more formal support identified within our spending plan with the aim of further developing resilience and self-confidence. Disadvantaged pupils will be prioritised for access to these activities.

### Planning, implementation, and evaluation

In planning our new pupil premium strategy, we ensured that we followed the guidance provided by the Education Endowment Foundation. We took evidence from the outcomes of a range of monitoring including the analysis of internal data, lesson observations, pupil and staff interviews and work scrutiny.

The views of parents and carers were also sought and considered. As a school in a large trust we were able to benchmark ourselves against schools within HET and also looked outside to schools which are contextually similar to Woodland Primary and whose disadvantaged pupils perform well. This reinforced that careful attention is given to the implementation stage. [Education Endowment Foundation - Putting evidence to work: A school's guide to implementation](#)

We looked at external evidence around the impact of school closures due to Covid-19 and it is clear that the attainment gap has grown. [Education Endowment Foundation - summary of research on impact of Covid-19 on the attainment gap](#) The economic impact of lockdown has resulted in more pupils becoming eligible for the Pupil Premium and the importance of understanding barriers to learning and adopting a 'less is more' focused approach cannot be over emphasised.

Within school and across the Trust we have robust evaluation procedures and these will help us identify successes and make amendments to our plans, if needed to secure the best possible outcomes for our disadvantaged pupils.