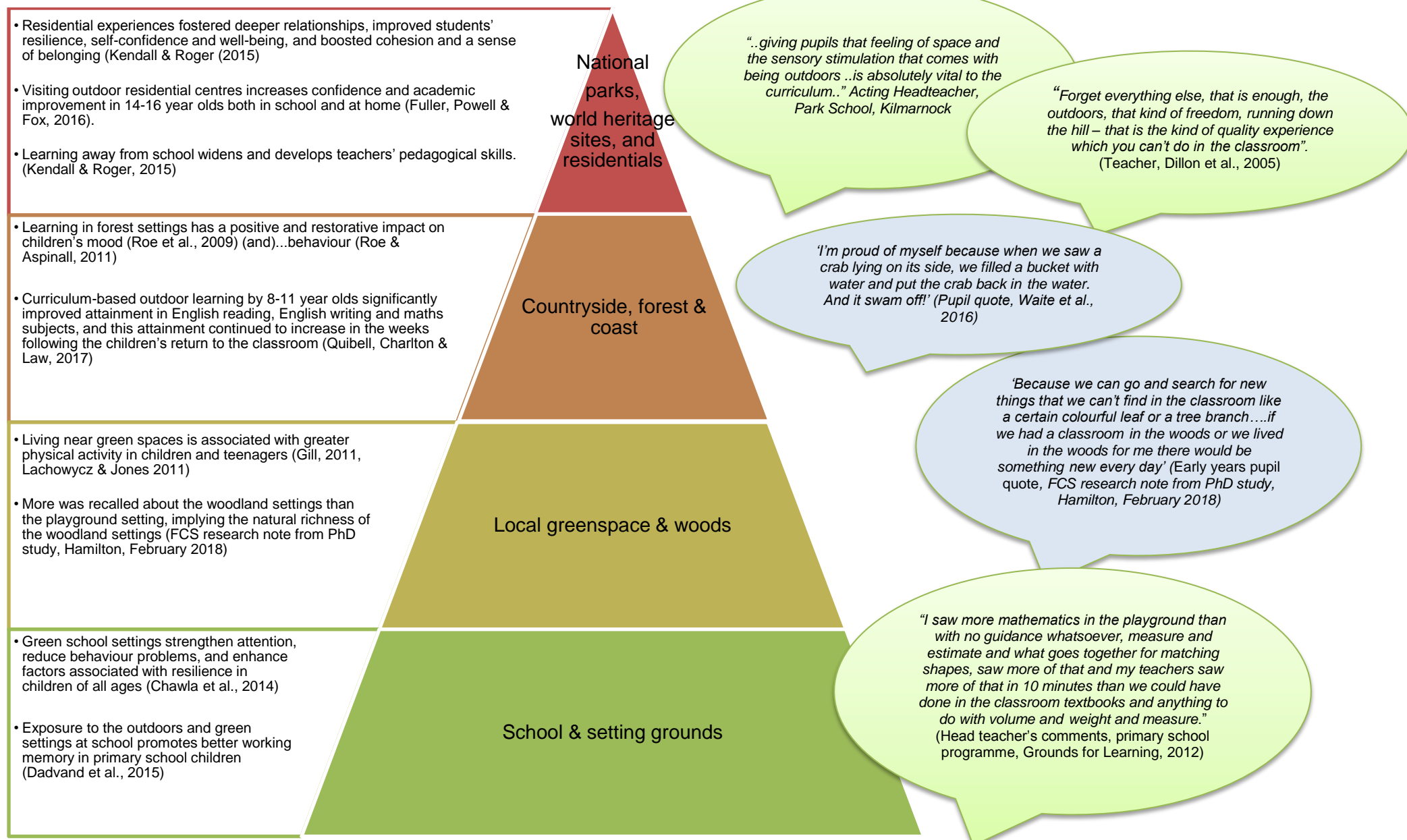


Evidence model showing the impacts and benefits of outdoor learning and play approaches in different outdoor learning contexts



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CONTEXT	MENTAL AND PHYSICAL HEALTH & WELL-BEING	LEARNING & DEVELOPMENT
SCHOOL & SETTING GROUNDS	<ul style="list-style-type: none"> • In green school grounds, students find peace away from stresses in the classroom and daily life (Chawla et al, 2015) • Green school settings strengthen attention, reduce behaviour problems, and enhance factors associated with resilience in children of all ages (Chawla et al., 2014) • The simple addition of shrubs and potted plants to the school grounds lowers psychological stress levels and enhances well-being in adolescents (Kelz et al., 2015) • Long term gardening programs have been shown to increase pupils overall life skills, improve teamwork skills and self-understanding (Robinson & Zajicek, 2005) • <i>‘Children who take part in school gardeninghave healthier eating habits....school gardening projects are associated with improved social skills...(and) ...lead to increased self-awareness’</i> (Gill, 2011a) • Playing in complex natural environments improves motor development in 5-7 year olds (Fjortoft, 2004) 	<ul style="list-style-type: none"> • Green school settings strengthen attention, reduce behaviour problems...in children of all ages (Chawla et al., 2014) and lead to children engaging in more varied forms of play (Dyment & Bell, 2008) • Exposure to the outdoors and green settings at school promotes better working memory in primary school children (Dadvand et al., 2015) • A simple program of on-going school grounds activities such as gardening projects can improve scientific learning (Gill, 2011a) • Tree cover in school grounds has been shown to be positively correlated with increased academic performance of socially-disadvantaged primary school children (Sivarajah, Smith & Thompson, 2018) • In a 12 week outdoor programme (2hrs per week) in West Lothian, children gained on average 6 months of Mental Arithmetic and 2 months of General Maths (Outdoor Learning Hubs: A Scottish Attainment Challenge Innovation Fund Project Report 12 Dec 2017)

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CONTEXT	MENTAL AND PHYSICAL HEALTH & WELL-BEING	LEARNING & DEVELOPMENT
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">LOCAL GREENSPACE & WOODS</p>	<ul style="list-style-type: none"> • Living near green spaces is associated with greater physical activity in children and teenagers (Gill, 2011) The majority of studies (66%) found some evidence of a positive association, although only 40% found an association that appeared unambiguous Lachowycz & Jones 2011) • <i>‘Spending time in nearby nature leads to improvements in mental health and emotional regulation, both for specific groups of children (such as those with ADHD) and for children as a whole.’</i> (Gill, 2011a) • In a 12 week outdoor programme (2hrs per week) in West Lothian, a health and wellbeing questionnaire study on the children’s attitudes to learning also increased by 20% over the year while the control group decreased by 3% over the same time period (Outdoor Learning Hubs: A Scottish Attainment Challenge Innovation Fund Project Report 12 Dec 2017) • Exposure to greenspace in suburban communities has been shown to be positively associated with moderate-vigorous physical activity (MVPA) - children who were exposed to greenspaces for >20 mins daily engaged in 5 times as much MVPA compared to those with nearly zero exposure (Almanza et al, 2011). 	<ul style="list-style-type: none"> • ADHD symptoms improve after time spent in green settings, increasing concentration and improving functioning, even in relatively small interventions such as a walk in the park (Faber, Taylor & Kuo, 2009) • More was recalled about the woodland settings than the playground setting, implying the natural richness of the woodland settings (FCS research note from PhD study, Hamilton, February 2018)

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CONTEXT	MENTAL AND PHYSICAL HEALTH & WELL-BEING	LEARNING & DEVELOPMENT
COUNTRYSIDE, FOREST & COAST	<ul style="list-style-type: none"> • <i>'Forest school ...projects are associated with improved social skills; in addition, forest school ...leads to improved self-control.'</i> (Gill, 2011a) • Learning in forest settings has a positive and restorative impact on children's mood with the greatest impact on those considered to be suffering from poor mental health (Roe et al., 2009). • Physical activity levels are significantly higher during Forest School compared with typical school days (Lovell, 2009; Myggind, 2007) 	<ul style="list-style-type: none"> • Time spent playing in green and blue (beach) spaces increases positive behavioural development in schoolchildren, with the greatest impact from blue settings (Amoly et al., 2014) • Learning in forest settings has a positive and restorative impact on children's behaviour, with the greatest impact on those considered to be of 'poor' behaviour by teachers (Roe & Aspinall, 2011) • Curriculum-based outdoor learning by 8-11 year olds significantly improved attainment in English reading, English writing and maths subjects, and this attainment continued to increase in the weeks following the children's return to the classroom (Quibell, Charlton & Law, 2017)

Evidence model showing the impacts and benefits of outdoor learning and play approaches in different outdoor learning contexts

CONTEXT	MENTAL AND PHYSICAL HEALTH & WELL-BEING	LEARNING & DEVELOPMENT
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">NATIONAL PARKS, & WORLD HERITAGE SITES, INCLUDING OUTDOOR RESIDENTIALS</p>	<ul style="list-style-type: none"> • Visiting outdoor residential centres results in a greater sense of confidence and independence in teenagers both in school and at home (Fuller, Powell & Fox, 2016) • Residential experiences fostered deeper relationships, improved students' resilience, self-confidence and well-being, and boosted cohesion and a sense of belonging (Kendall & Roger (2015) • <i>Strong themes are positive personal and social gains of direct and novel outdoor experiences in big landscapes.....</i>' (Outdoor educator, Dillon et al., 2005) • Research suggests that the most positive outcomes are observed in programmes where learning and reflection are effectively integrated into pre and post experience phases of residential experiences (Christie, 2004; Christie, Higgins & McLaughlin, 2013; Kings College London, 2011) 	<ul style="list-style-type: none"> • Visiting outdoor residential centres increases confidence and academic improvement in 14-16 year olds both in school and at home (Fuller, Powell & Fox, 2016). <i>'Whether real or imagined, that students felt more confident was significant and their self-efficacy and confidence appeared to directly impact on their sense of self in positive ways within school, particularly in relation to how they saw themselves as learners.'</i> (Fuller, Powell and Fox, 2016) • Residential experiences improved students' engagement with learning, improved students' knowledge, skills and understanding, supported students' achievement, and widened and developed teachers' pedagogical skills (Kendall & Roger, 2015) • 'Children's memories and learning from the visit were closely related. Strong themes areappreciation of methods of enquiry into the natural world (scientific and artistic) and interest in revisiting the National Park.' (Outdoor educator, Dillon et al., 2005) • Outdoor adventure experiences that are effectively linked to school learning and culture can lead to three key outcomes of social connectedness, a re-calibrated sense of self and increased sense of self-efficacy in leadership (Richmond et al., 2018)