



Computational Thinking Resources Inspired by Bebras

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ABSTRACT

In this poster, we highlight computational thinking resources for schools from the PACT team at Maynooth University, Ireland. The resources are derived from tasks from the Bebras international computational thinking initiative. The different modalities work together throughout the school year to provide initial exposure to computational thinking, and include an obstacle course, seasonal tasks, and a workbook.

KEYWORDS: Computational thinking, Bebras tasks, K-12, unplugged

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1 INTRODUCTION

The PACT team at Maynooth University Department of Computer Science is the academic partner to Ireland's National Bebras Organiser (the Irish Computer Society). It adapts Bebras tasks for computational thinking (CT) activities, including classroom resources, school visits, and teacher-training workshops. In Ireland, computer science is not part of the primary school curriculum and is optional in only a minority of secondary schools. Since 2012, the PACT team has engaged over 30,000 teachers and pupils in Ireland in CT activities. These range from resources made available on our website (e.g. CT obstacle courses, seasonal tasks, and workbooks) to direct engagement with pupils and teachers (school visits, presenting at teacher conferences, and co-creation workshops for teachers on how to teach CT skills in the classroom). In this poster, we introduce a variety of resources we have derived from Bebras tasks [1] to be used in classrooms.

2 BEBRAS-INSPIRED CLASSROOM RESOURCES

CT Obstacle Course: The CT Obstacle Courses [3] were created to introduce teachers (and pupils) without formal computer science

training to the subject of CT in a manner that informs and motivates, giving teachers the confidence to deliver CT materials later in the classroom. Each CT Obstacle Course includes 14-20 Bebras tasks and is completed by pupils in groups, promoting teamwork and communication. More details of the obstacle courses are published elsewhere [3].

Seasonal CT Tasks: To ensure consistent CT engagement in schools throughout the school year we have developed the concept of Seasonal CT tasks, and distribute them widely. Bebras tasks are modified (story and graphics) to suit the theme of the holiday/event, including St. Valentine's Day (February), St. Patrick's Day (March), Easter (April), Summer (June), Halloween (October), and Christmas (December).

CT Workbook: The CT Workbook offers teachers a structured way to teach CT in primary school. It has ten lessons based on Bebras tasks with extension activities. A book of teacher notes was co-created with pre-service teachers (detailed previously [2]), and for each lesson it includes a lesson plan, suggestions for extra activities, solutions, and connections to CT concepts.

3 CONCLUSION

Based on teacher feedback [2, 3], we have concluded that materials and activities based on Bebras tasks are an effective approach to introduce CT in schools. These tasks promote skills that cross-cut primary and secondary curricula in Ireland, and teachers use them in a variety of subject classes. All resources are available on our website [4].

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