

## Strategies and tools for teaching Time

Teacher demonstration, guided practice and independent practice are key features of effective pedagogies when teaching mathematics. Providing frequent opportunities for children to actively engage and respond to mathematical activities and incorporating constructive feedback into lessons are also essential elements of the learning and teaching process.

Working with children in **small groups** or on a **one to one basis**, as well as increasing feedback are useful approaches to providing additional support to some children. While some children will benefit from using teacher directed supports, others will gain from using supports of their choice when engaging in tasks and activities on time.

Given the complexities of teaching and learning time, a critical first step lies in the identification of children's baseline knowledge of the pre-requisite number and time skills. *The Measures Manual Time Assessment Pack* from OIDE (formerly PDST) provides a useful criterion-based assessment in this regard.

### Mathematical language

**Teaching the language of time** gives children a verbal tool to support their **conceptual development**. Children learn best when their teachers use the specific language associated with the concept. Maths language should be clearly explained in meaningful contexts.. Visual representations or images of the language are helpful for many children. These could be on display in classrooms (maths word wall) and/or documented in the children's individual maths journals (define and visualise/represent key language and procedures). Use the language on a regular basis in everyday and practice-based contexts at home and in school. It is best to communicate with parents in order to ensure a consistent approach to maths language in home and school settings.



### Using digital and analogue clocks

**Telling the time digitally** is a **core life skill**. Children generally find it easier to become proficient in telling the time in this manner. However, telling the time on a digital clock may not equate with a conceptual understanding of time. The **analogue clock** has the advantage of providing visual images of elapsed time to illustrate the relationship between minutes and hours and is therefore a **highly recommended teaching tool** for teaching the **concept of time** and for **solving time problems**.

The teaching sequence typically begins with the analogue clock. Using a one-handed clock (hour hand only) is a means of providing additional support for some children. Making the associations explicit between the digital and analogue clock from the earliest stages supports children's learning. While most children will learn how to tell the time in analogue and digital formats simultaneously, others may benefit from being taught understanding and proficiency in one format initially (Butterworth & Yeo, 2007).



## Using visual supports

Using **visual schedules** to depict the class timetable for a day or for an individual class gives a visual image to the passage of time. **Visual timers** such as sand timers and digital timers (with visual features) for specific time periods e.g. a five-minute activity aids a deeper understanding of elapsed time. **Visual Arts activities** such as a comic strip or the life cycle of a butterfly, can be used to visualise the passing of time learned in areas such as Social and Environmental Education.

**Time-themed** books can enhance learning by providing a context for a time related skill, can support understanding and generalisation and may also increase children's interest in the topic. Reading or listening to a story about time is an excellent first step when teaching the concept. Children should have access to time-themed books during independent reading time and should also be facilitated to take these books home for home reading. Examples of suitable books include – *Just a Second*, *A Second is a Hiccup*, *Me Counting Time*, *What's the time, Mr. Wolf?* *The Bad-Tempered Ladybird*, *The Tortoise and the Hare*, *The Very Hungry Caterpillar*. Children with more advanced time skills would enjoy stories featuring, for example, historical timelines, the history of telling the time and lifecycles (butterfly, an old oak tree, autobiographies).

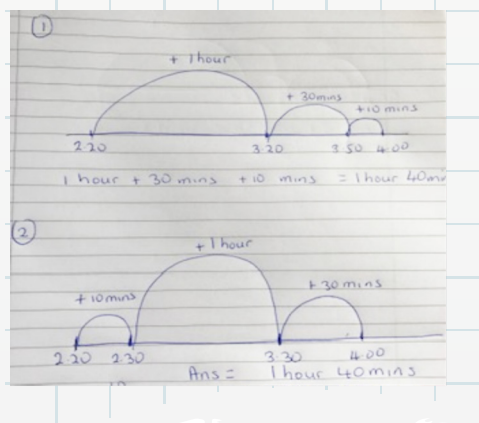
## Using technology

**Technology** use is a valuable means of enhancing teaching in maths and is particularly suited to aid the development of procedural skills for children requiring additional support in Time. Using technology, teachers can either develop their own activities or source them online. Relevant activities include sequencing everyday events; ordering days of the week, months, seasons; telling the time; matching analogue and digital times; converting analogue to digital time; accessing cinema listings, bus and train timetables in real time contexts etc. Interactive teaching clocks can be found online on a number of websites and can act as helpful teaching resources for both home and school.

## Using timelines

The film **Finding Nemo** starts at 2.20.  
It is over at 4.00. How long does it last?

- 1 hour
- 30 minutes
- 10 minutes
- 1 hour 40 minutes



Applying their knowledge of number lines to **timelines** is a useful **visual problem-solving strategy** for **elapsed time problems**. A key feature of this approach is that it allows children to visualise and document their solutions in a visual manner. Similar to teaching other problem-solving strategies, teachers should introduce the **timeline** using an explicit pedagogical approach. In this case, the 'I do, We do, You do' teaching sequence may be useful.

This is achieved through teacher modelling and verbalisation of their thinking processes (think-aloud) to provide an explanation and rationale for each step of the process (**I do**). Having observed several similar problems, children can be given the opportunity to complete similar problems in pairs or in small groups (**We do**).

Allow children the flexibility to use different bridging options when using timelines initially (See the Finding Nemo example). They will become more sophisticated in this task as they progress in their thinking. The final step of the teaching sequence requires children to undertake timeline problems independently (**You do**).

Problem-solving  
Teaching  
Sequence

I do  
We do  
You do

It can be helpful for children to have opportunities for open discussions where they provide a rationale for their choice. In addition, they will gain from opportunities to discuss timeline solution choices other than their own. Critical to the success of the **timeline** teaching sequence is engaging children in interactive feedback throughout the process.



#### **Class management strategy**

Encouraging children to verbalise each step of the problem-solving process can help overcome impulsive behaviours, lead to longer engagement and increase achievement.

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PDST Professional Development Service for Teachers. No date. PDST Measures Manual Time Assessment Pack. Available at [https://pdst.ie/sites/default/files/Time\\_MeasuresAssessmentPack.pdf](https://pdst.ie/sites/default/files/Time_MeasuresAssessmentPack.pdf)