

## Overview

In this activity, your child/children will create hand clapping, hand tutting (see videos attached) or hand jive sequences of movements. Children break the sequence of actions down into parts and in so doing are decomposing. Children can link this idea to breaking problems down when creating computer programs such as animations or games.

### Concepts:





**Decomposition**

**Age group:** 7 – 11

**Duration:** 15 – 45 minutes

### Materials you will need:

The following are provided to download and print out, but you may want to use pen and paper instead:

-  Sequence design sheet
-  Example design sheet
-  Access to YouTube for example videos:

#### Basic Tutting moves

[www.youtube.com/watch?v=cBu3mTyjqho](http://www.youtube.com/watch?v=cBu3mTyjqho)

#### Simple tutting

[www.youtube.com/watch?v=axpDFvUz8Eo](http://www.youtube.com/watch?v=axpDFvUz8Eo)

#### Clapping

[www.youtube.com/watch?v=tXEhm3qVHCc](http://www.youtube.com/watch?v=tXEhm3qVHCc)

#### Hand jive

[www.youtube.com/watch?v=n5FXpc1nPr0](http://www.youtube.com/watch?v=n5FXpc1nPr0)

#### Clapping patterns explained

[www.youtube.com/watch?v=6k6J1jdQY\\_w](http://www.youtube.com/watch?v=6k6J1jdQY_w)

## What will your child/children learn?

**Decomposition** – decomposition is the process of breaking down a task into smaller, more-manageable parts.

It has many advantages. It helps us manage large projects and makes the process of solving a complex problem less daunting and much easier to take on.

The behaviours **creating**, **persevering**, **collaborating** and **tinkering** (changing things to see what happens), are approaches to learning that are encouraged throughout our home activities.

## Getting started

- 1) Watch together a sequence of hand movements; this could be a hand jive or tutting moves or clapping sequence (See videos for ideas.) The sequence needs to be relatively complex or long so that your child/children will find it difficult to remember the parts without it being broken down into parts.
- 2) Ask your child/children to recreate the sequence without showing it to them again, or explaining the parts.
- 3) Ask if they could teach it to you in a more effective way, leading to the idea of breaking the sequence down into parts
- 4) Explain that breaking something down into parts is called decomposition.

## Their turn

- 1) Give your child/children paper or the Sequence design sheet on which to record their sequence. Give them time to work out their sequence of movements and record their decomposition. You could help them by discussing moves, recording each part, testing it out and debugging (fixing) it.
- 2) Ensure they are breaking down their sequence into parts. Stop them occasionally to demonstrate their sequence so far.

## Time to talk

- 1) Discuss how breaking down the sequence into parts helped their design process and sharing of the sequence. Points for discussion might include, being able to see the overall sequence of parts, being able to spot repetition, being able to focus on one part at a time.
- 2) Ask your child/children to think how computer scientists create computer programs, for example if they were creating a new computer game, say one like Angry Birds. Some designers might work on the first level of the game others on the next. Some programmers might work on the backgrounds, some on the sound, and others on the action.
- 3) Explain that decomposition is a fundamental skill when working with computers as it helps us break down complicated problems, focus on one part at a time and share the work with others.

## More ideas

- It may help your child/children by photographing each part of their sequence.
- Can your child/children spot any repeated moves and how they could use a 'repeat command'? E.g. after about 4 moves could they add repeat in next rather than writing it out again.
- Create a YouTube style video like the resources attached.

# Sequence design sheet

## Breaking my sequence down into parts

Are all the parts in the right order? Have you got all the parts? How do you start?


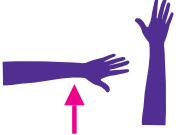
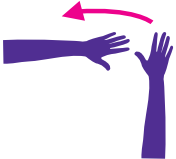
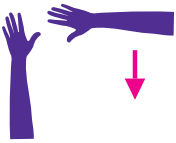
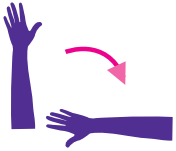
Part	Drawing

# Example sequence design sheet

## Breaking my sequence down into parts (example)

A similar sequence but to the left:

[www.youtube.com/watch?v=axpDFvUz8Eo&feature=youtu.be](http://www.youtube.com/watch?v=axpDFvUz8Eo&feature=youtu.be)

Part	Drawing
start ①	
elevator ②	
push ③	
drop ④	
snap ⑤	
lift ⑥	