

# Design Technology Year 3 Levers and Linkages: Moving Winter Cards Autumn Term

Prior Learning: In KS1, children will have: *learned how to make pop up books using pivots and levers. Learned about how to reinforce and strengthen materials.*

## Cross Curricular Links – Seasonality – RE – Christmas/Diwali Literacy – greetings cards

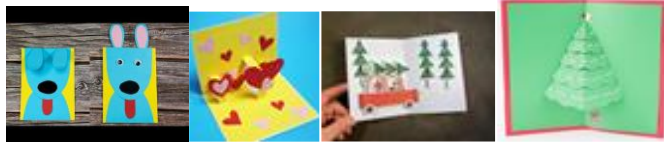
Look at the artist Matthew Reinhart – he creates exciting pop up books from famous stories <http://www.matthewreinhart.com/pop-up-books/>  
Famous paper engineers  
<https://www.bestpopupbooks.com/pop-up-book-authors/>



### 1. **TWAL: To understand a design brief**

#### **TWAL: To explore and evaluate a range of mechanisms and Christmas cards**

We will be given a design brief to create a Christmas/Diwali or winter card that moves. We look at what features are part of the card, how we can make things move using linkages and lever mechanisms we will investigate, analyse and evaluate books and, where available, other products which have a range of lever and linkage mechanisms.

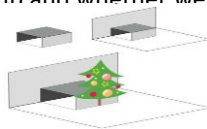


### 2. **TWAL: To learn how to make a pop up mechanism**

In this session, we will look at how to make things pop up and learn different methods of doing this. We will identify when we might use each style of pop up and whether we can apply these to our final design.



A pop up mechanisms can create a 3D moveable effect

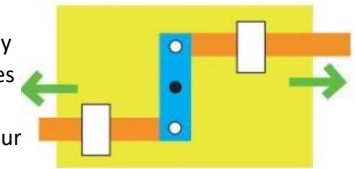


### 4. **TWAL: to design a moving card using a lever.**

We will start by reminding ourselves of our design brief, and coming up with some success criteria. We will create a plan by drawing out an initial design. Labelling it with the key features resources we will need.



It is important to include measurements in your design so that your pieces fit together!

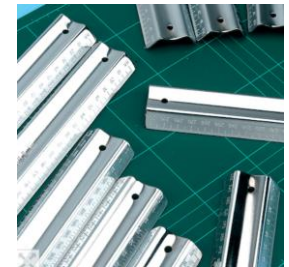


### 5. **TWAL: To create a moving card using a lever.**

We will gather our materials together that we need. We will ensure that we measure and cut our each of our pieces accurately. We will ensure that we consider the best order in which to make our parts and fix them together.



Great designers evaluate their design at every stage so that they can make it better!



### 6. **TWAL: To investigate moving parts**

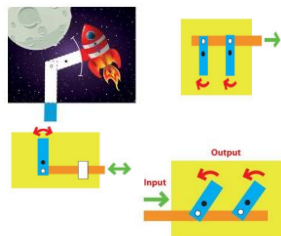
We will investigate, analyse and evaluate books and other products, which have a range of lever and linkage mechanisms. We will learn about fixed pivots and loose pivots and answer questions such as 'How do you think it will move?' 'What parts are moving?' and 'How effective do you think it is?'



A fixed pivot joins your card to the base structure so it does not move, whereas a loose pivot connects to the lever and will move back and forth.

### 3. **TWAL: How to make levers and linkages.**

We will build on our learning of levers and linkages from key stage one. We will build an understanding of each component of a moving system and identify which card strip is the lever, which card strip is acting as the linkage. We will question, which part of the system is the input and which part the output? We will identify and compare each type of movement caused by different linkages.



### Words we will know!

