Public goods

One approach to the issue of public goods is to start off with a game. There are a set of standard public goods games. One good example is this one:

http://www.economicsnetwork.ac.uk/archive/Bradford/Public%20goods/Public%20goods%20game.pdf

I have taken the instructions and score sheet from there (see the instructions at the end), however, if you have a very small group you may need to change the pay offs – for a group of 5 students, it might be better for the earnings to be £4 for a red card that is kept and £2 to everyone for a red card that is played. The second round could then be £4 if you keep it but £3 to everyone if you play it.

The idea, of course, is (using the numbers from the instructions for a group of 10 students) that if everyone keeps their red cards, each player will get £8. If everyone is unselfish, then there will be 20 red cards in the communal pot and everyone will receive £20.

But there is always a big incentive to 'free ride' – the hope that everyone else plays red so that you keep yours and get the communal benefit.

Hence the game should allow a discussion of communal good versus free riders.

In terms of how to operate:

First
Hand out the instructions, score sheets and four playing cards (you will need two decks if you have more than 13 students) to each student. Run through the instructions with them, making sure everyone is clear what will happen. Run through the 3 options (Keep 2 reds, keep 1 red, keep 0 reds) that they have and explain what the financial implications for them/the group are.

Then
Play round 1. State the total number of red cards in the communal pot so that people can work out their total reward each round. What will tend to happen is that the number of red cards will slowly diminish.

After round 5
You announce that the value of a red card that is kept will fall to £2 (providing less incentive to cheat). Play for another 5 rounds and then open up the discussion:

What happened?
Why did it happen?
What could be done about it?

After this discussion

You can divide them into pairs/small groups and ask them what real life examples do they think might work in this way (a big collective benefit, but an ability for individuals to 'free ride'). If you want to help them, you could first explain that we are dealing with public goods and explain the two key characteristics of non-excludability and non-diminishability/rivalry.

Typical examples that they come up with include:

- defence;
- police force;
- flood/sea defences;
- roads (really a quasi-public good);
- public fireworks displays, etc.

To make the point fully clear, you could show the following clip about flood defences (which are being paid for by the local council) and ask them why people won't pay:

https://www.youtube.com/watch?v=DxEkExkgK3I

Some students may question this and argue that under certain circumstances they might pay. Here is an example:

http://www.bbc.co.uk/news/uk-england-cumbria-21865085

The key is therefore how big the collective reward is relative to not paying – you can relate back to the pay offs in the card game. The bigger the reward for playing a red card and the lower the reward for keeping it, the more likely cooperation will be to evolve.

Instructions

This is a simple card game. Each of you will be given four cards, two of these cards are red (hearts or diamonds), and two of these cards are black (clubs or spades). All of your cards will be the same number. The exercise will consist of a number of rounds. When a round begins, I will come to each of you in order, and you will play two of your four cards by placing these two cards face down on top of the stack in my hand. Your earnings in dollars are determined by what you do with your red cards. In each of the first five rounds, for each red card that you keep you will earn four dollars for the round, and for each black card that you keep you will earn nothing. Red cards that are placed on the stack affect everyone's earnings in the following manner. I will count up the total number of red cards in the stack, and everyone will earn this number of dollars. Black cards placed on the stack have no effect on the count. When the cards are counted, I will not reveal who made which decisions. I will return your own cards to you at the end of the round by coming to each of you in reverse order and giving you the top two cards, face down, off the stack in my hand. To summarize, your earnings for the round will be calculated:

earnings = (£4 times the # of red cards you kept) + £1 times the total # of red cards I collect.

After round 5, I will announce a change in the earnings for each red card you keep. Even though the value of red cards kept will change, red cards placed on the stack will always earn one dollar for each person…

Use the space below to record your decisions, your earnings, and your cumulative earnings.

Earnings Record Sheet						
round	no. of red cards kept	£ per red card kept	earnings for cards kept	£1 x total number of red cards in stack	your total earnings this round	cumulative earnings
1						
2						
3						
4						
5						
	In the remaining rounds, £ per card kept = £2					
6						
7						
8						
9						
10						