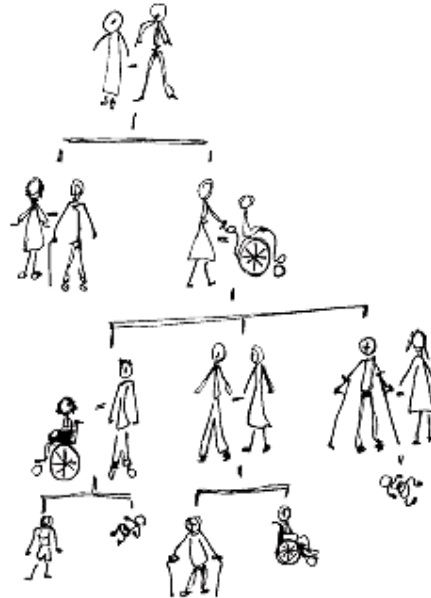


CROSS-CURRICULAR MATERIALS FOR KEY STAGE 4  
(SCOTTISH CERTIFICATE OF EDUCATION - STANDARD GRADE)



## Genes and You

Teaching about genetics from a human perspective

by Gill Mullinar

GENETIC INTEREST GROUP

\*

THE WELCOME TRUST

Helping medical science to flourish

\*

Published by the Wellcome Trust

The Genetic Interest Group is a registered charity, no.803424

The Wellcome Trust is a registered charity, no. 2107S3

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## INTRODUCTION

by Dr Laurence Smaje, programme director at the Wellcome Trust

**I am delighted to introduce this educational pack Genes and you which has been written by Gill Mullinar on behalf of the Genetic Interest Group and sponsored by the Wellcome Trust. Targeted at Key Stage 4 students, it is just what is needed to bridge the gap between 'science' on the one hand and 'society' on the other.**

The divide is, of course, artificial and nonsense. Science is as much a part of society as is literature or the arts, but traditionally they become separated in our educational system and the division is perpetuated by the media. Because of this, teachers may find it difficult to handle the social issues arising from advances in medicine. Moreover, we know from our research, that students find it difficult to relate to their own lives what they learn about genetics in formal courses.

Why does this matter? Genetic conditions are rare, aren't they? Well no. Defects in single genes are known to result in more than 4000 human disorders and we also now know that there is a genetic component to many complex disorders such as cancer, diabetes and heart disease as well as a number of behavioural disorders such as schizophrenia. Current research in genetics is revealing more and more about aspects of our lives that have a genetic component. The current challenge is to work out the relationship between the interactions of our genetic makeup and the physical and psychological environment which, together, make us what we are.

Genes and you provides an excellent solution to this dilemma by providing challenging ways of incorporating scientific information into social situations of relevance to school students. Teachers' notes complement the student activity sheets in a series of real-life scenarios which challenge common stereotypical social attitudes by providing background social information as well as a clearer understanding of the science.

The exploration is handled imaginatively and sensitively through roleplay and other exercises. The pack is also an excellent way to help young people acquire the intellectual and emotional understanding necessary to deal with the challenges arising out of advances in modern genetics research.

The way we use science has to be determined by society as a whole, not by scientists, doctors or politicians alone. I commend this programme as an original contribution to equipping students to contribute to the informed debate that is essential if we are to find effective ways of balancing the benefits of such research against its costs.

**By Alastair Kent, Director of the Genetic Interest Group**

The Genetic Interest Group (GIG) is the UK alliance of charities, voluntary agencies and support groups for individuals and families affected by genetic disorders. Bringing together our 130 such independent bodies, GIG seeks to establish the issues of common concern to its member groups, to promote awareness of the impact that genetic disorders have on those affected, and to advocate for the speedy and effective transfer for scientific advance into real benefits for individuals, families and society. GIG also strives to combat unfair discrimination arising from the misuse of genetic information.

Historically, genetic disorders have been seen as rare events, individual tragedies happening out of the blue. Science tells us that we are all carriers of a small number of rare, recessive disorders, and that within our genotype there may be mutations which significantly affect our chances of developing common diseases such as cancer, heart disease, diabetes or Alzheimer's disease.

This being so, understanding the basic biology of genetics and its personal, social and medical consequences is important for each and every one of us - so we can understand our situation and make informed choices about our own future, and appreciate the circumstances which may affect those around us in the community. It is to further this objective that this pack has been developed.

## ACKNOWLEDGEMENTS

(Director, Genetic Interest Group)

**I am immensely grateful to the following people, all of whom have contributed to the development of Genes and you in some way. Their support has been an inspiration. Many thanks too to all those who provided technical advice or commented on my original draft. Their input has been vital to the success of the project, although I would like to emphasise that responsibility for any inaccuracies lies solely with the author.**

Susan Bevington, Galactosaemia Support Group, Peter Brown, The Haemophilia Society, David and Julie Chandler, Psoriatic Arthropathy, Alliance (PAA, John Dart, Dystrophic' Epidermolysis Bullosa Research Association (DEBRA), Gareth Davies, Cleft Lip and Palate Association (CLAPA), Jonathan Farrow, Association of Cystic Fibrosis Adults (ACFA) Helen Froyd, Breast Cancer Care, Lesley Greene, Research Trust for Metabolic Diseases in Children (RTMDC) Mary Guest, Usher Syndrome Services

Theo Harris, The Sickle Cell Society Marion Lesage, Vitiligo Society Drina Parker, Laurence-Moon-Bardet-Biedl Society (LMBBS) Honor Rawlings and Ros Smith, Restricted Growth Association, Margaret Read, CMT International UK Wendy Roberts, The Association for Glycogen Storage Disease (UK) Sarah Rutter, Down's Syndrome Association, Cath Stanley, Huntington's Disease Association, Roberta Tweedy, The Neurofibromatosis Association, Morna Wilson, Brittle Bone Society, Katie Yiannikou, UK Thalassaemia Society, Mrs. A. Corellis, St. Richard Gwyn RC School, Ms. B. David, Glan Ely High School, Mrs. S. Gates, Haydon School Mr. P. Heron and Miss P.G. Mason, Mary Linwood School, Ms. S. Huda and Mrs. S. Hughes, Bordesley Green Girls' School, Dr. E. Jones, Mrs M. Anderton and Mrs. E. Parkin, Nottingham High School for Girls, Mrs. M.J. Lawrence, Palmers Green High School, Dr. F. Meek and Mrs. H. Phillips, Harvington School, M. J. Mellor, Moorside High School, Mr. J. Morris, Cardiff High School, Mrs. M. Richards, Radyr Comprehensive School, Dr. R.G. Steane, Salesian College, Dr. Micheala Aldred, Mr. Elizabeth Anionwu, Jane Belman, Wendy Chorley, Shirley Dalby, Peter Finegold, John Gillott, Hifsa Haroon-Iqbal, Dee Heaps, Yalda Jamshid, Dr. Jill Kent, Professor Anna Kessler, Marion McTair, Shirley Quemby, Jane Rybar, Asfa Salim, Dr. Barbara Skene, Jennifer Wiggins, Illustrations by Roger Hood.

**Particular thanks to the young people who talked to me so openly about their lives. They include Amit, Andy, Chris, Dianne, Emma, Janet, Joanne, Kate, Matthew, Richard, Roger, Sonia, Stephanie, Steven and Sue.**