

PART II

HUMAN ECOLOGY AND FAMILY SCIENCES

TEXTBOOK FOR CLASS XII

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FOREWORD

The *National Curriculum Framework* (NCF) 2005 recommends that children's life at school must be linked to their life outside the school. This principle marks a departure from the legacy of bookish learning which continues to shape our system and creates a gap between the school, home and community. The syllabi and textbooks developed on the basis of NCF signify an attempt to implement this basic idea. They also attempt to discourage rote learning and the maintenance of sharp boundaries between different subject areas. We hope these measures will take us significantly further in the direction of a child-centred system of education outlined in the National Policy on Education (1986).

This initiative can succeed only if all stakeholders—school principals, parents and teachers—encourage children to reflect on their own learning and to pursue imaginative activities and questions. We must recognise that, given space, time and freedom, children generate new knowledge by engaging with the information passed on to them by adults. We also must remember that a prescribed textbook is only one of the learning resources for a child, and the teacher another. Her/his home and her/his environment, her/his life and her/his peers, all these are resources and sites of learning. Inculcating creativity and initiative is possible if we perceive and treat children as the chief agents of their learning, not as receivers of a fixed body of knowledge. These beliefs imply a considerable change in school routines and mode of functioning.

The book in your hand at present is an example of how a textbook can be. It is based on NCERT's resolve to reconstruct knowledge in all areas from the perspective of the learner and the dynamic socio-economic realities of contemporary India. The National Focus Group on Gender Issues in Education, appointed under the auspices of NCF-2005, emphasises the urgency of incorporating women's perspective for epistemologically redefining conventionally defined subjects like home science. We hope that the present textbook will make this subject free of gender bias and capable of challenging young minds and teachers for creative study and practical work.

NCERT appreciates the hard work done by the Textbook Development Committee responsible for this book. We are especially grateful to the members of the National Monitoring Committee, appointed by the Department of Secondary and Higher Education, Ministry of Human Resource Development, for their valuable time and contribution and the sub-committee (National Review Committee) for Human Ecology and Family Sciences (HEFS) for their contribution in reviewing the textbook.

As an organisation committed to systemic reform and continuous improvement in the quality of its products towards quality learning for all, NCERT welcomes comments and suggestions which will enable us to undertake further revision and refinement.

New Delhi
February 2016

H.K. Senapaty
Director
National Council of Educational
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PREFACE

The textbooks on Human Ecology and Family Sciences (HEFS), hitherto known as 'Home Science', have been developed based on the vision and principles of the *National Curriculum Framework – 2005* of the NCERT. Globally, the field of Home Science is known by newer nomenclatures but encompasses basically five domains, namely, Food and Nutrition, Human Development and Family Studies, Fabric and Apparel, Resource Management, and Communication and Extension. Each of these domains or specialisations (as referred to in various colleges and universities) have grown and matured with expanding horizons, keeping in tune with the changing needs of individuals, families, industry and society. Consequently these domains have developed newer thrusts in view of the evolving job market, and in many universities have been renamed to represent their current status and scope in a better way.

All these domains have their specific content and focus that contribute to the Quality of Life (QOL) of individuals, families and communities in the global, socio-cultural and socio-economic contexts. Every person is entitled to a good QOL, and this creates a demand for professionals who can positively contribute to different areas and needs of personal and social life – ranging from basic sanitation, housing, health care for physical and mental well-being, safety, environmental promotion and protection, clothing, finance and a host of myriad allied aspects of living, from micro to macro levels. This obviously creates a challenge for educationists and educational institutions to train persons to deliver the multifarious services. In this context, HEFS provides numerous avenues with interdisciplinary perspectives. These include opportunities to work in industry/corporate sector, teaching at various levels, research and development, various cadres in public sector, regional, national and international organisations that work with and for communities as well as entrepreneurial ventures.

The academic fraternity, professionals working for community development and those from industry are constantly interacting and shaping the education and training in these fields. Thus educational programmes offered under HEFS (Home Science/ Family and Community Sciences) are geared towards development of professionals who not only have knowledge and skills, but are also sensitised to the challenges, needs and concerns related to quality of life, productivity and sustainable development.

This textbook takes a holistic approach to address the pertinent issues related to work, employment and careers, keeping quality of life in perspective, individually and collectively. Hence, the first unit and chapter is focussed on life skills for livelihood, attitudes to work, work challenges, creativity, performance and productivity, social responsibility and volunteerism. The importance of flexibility, diversity, adaptation, balance between work, rest and recreation, enhanced job satisfaction, and importance of occupational health and safety are dwelt upon.

Entrepreneurship versus employment is discussed, especially bringing to the fore the opportunities that entrepreneurship provides for those interested in initiating innovation and change. While change is desirable, it is important not to forget our rich traditional heritage of knowledge and skills. Many of the traditional occupations, when coupled with innovation, modern perspectives and good marketing, have tremendous economic potential.

The other chapters and units describe the five salient domains of HEFS. Within each domain, there are several fields that offer ample professional opportunities and occupational avenues. The syllabus and textbook attempt to bring to focus the scope and significance of each domain in the present day scenario, with inputs on knowledge and skills to be acquired and honed, including use of ICT for not only gathering information but also as part of practicals, activities and projects in order to be a 'valued' professional.

The practicals have been designed to enable learners to gain insights and also have a bird's eye view of the tasks and challenges inherent in the various professional careers and avenues. Considerable emphasis is laid on 'construction of knowledge' through field exposure and first-hand experiences. The exercises and projects would help to encourage critical thinking, develop analytical and writing skills and eventually inculcate the 'passion to learn'. Many insights and 'seeds' of information have been 'sown'. Students and teachers in partnership can explore, think about, discover and discuss a variety of topics and issues. Further learning is encouraged through select exercises and review questions at the end of each unit. Some of the issues of current concern that have been addressed, could not only be thought provoking, but also foster sensitivity and social responsibility in the users of this textbook. Exercises in understanding region-specific opportunities and available resources have been included to encourage students (with guidance from their teachers) to understand, appraise and appreciate their own socio-cultural ethos and locales.

Objectives

The Human Ecology and Family Sciences (HEFS) textbook for Class XII has been framed to enable the learners to:

1. understand the scope and significance of each domain within HEFS.
2. appreciate the importance of life skills for work, livelihood and careers.
3. become sensitive to the nuances of work vis-à-vis age and gender.
4. appreciate the potential of entrepreneurship and other varied professional opportunities.
5. make informed career choices.

A feedback questionnaire is given at the end. We will appreciate your comments and views about various aspects of this textbook. You may use the given questionnaire or write to us on a plain paper/send e-mail. Your feedback will help us to improve further reprint editions.

A NOTE TO THE TEACHER

Dear Teachers,

You must have noted the radical changes in the organisation of these textbooks, compared to the conventional way in which Home Science education was earlier designed and delivered. However, the contents and the focus of the domains within Home Science (now called HEFS in the context of the revised NCERT syllabus), essentially remain undiluted. In fact, in the syllabus and textbook organisation, care has been taken to cover the basics and go further, to expose students to the newer and emerging horizons of the five domains – Food and Nutrition or Human Development and Family Studies, Fabric and Apparel or Resource Management and Communication and Extension. This deliberate departure from the earlier convention is to dispel the misconception about the discipline being limited in focus and scope to domestic science, and art and craft. It is also to create an interest in the field for its varied, multidisciplinary strengths, both in terms of quality education and potential for professional avenues.

In each chapter from Unit 2 onwards, the textbook has been designed to inform the learners about the significance and scope of each domain, the multiple thrusts that exist and are emerging. Each unit spells out the basic concepts, requisite knowledge and skills in each thrust area and delineates the career avenues and the preparation required for them in order to make informed career choices.

Unit 1 is about work, life skills, careers and livelihoods. It starts with a description about meaningful work and moves on to point out the need to balance work with rest and recreation, to ensure a good standard of living and quality of life. Further, the chapter elaborates on success and happiness in work life resulting from wholesome attitudes and approaches to work. An attempt has been made therein to introduce and sensitise youth to ethics, social responsibility, volunteerism and dignity of labour. In this context, it is pertinent to discuss the rich heritage of traditional occupations of India, with a view to informing the students that with creativity and innovation, there are immense opportunities for a satisfying career. The immense potential of entrepreneurship as a challenging career avenue is brought to focus to further the interests of the youth, especially for those who would like to be their own masters, to create employment for others while being gainfully self-employed. The unit also delves into the importance of a healthy work environment and the need to sustain good occupational health, while being aware of occupational hazards and safety measures required. It is felt that youth of today need to understand current issues including work in the context of age (child labour and engaging senior citizens) and gender (women and work). In this context, it is felt that the school(s) could invite 'guest faculty or experts' to interact with the students to enable them to obtain first hand realistic information.

Teachers should note that considerable theoretical inputs are required for students and learners to gain deeper understanding and appreciation of the different areas in each domain. Therefore, some basic theoretical information has been included in each unit. This theory-based content should provide adequate material for testing students' achievement in acquisition of knowledge. Further, based on student interest and capability, and region-specific resources and facilities, teachers may motivate and help students to obtain more information in areas and issues of their interest. The inclusion of review questions, activities, exercises, practicals, field visits and reporting, are envisaged as opportunities for students to develop reading and writing skills as well as critical and analytical thinking. Gathering and processing information is important *per se*. However, students should be encouraged to think and discuss the various issues and topics delineated in this textbook as a means of helping youth to think, construct knowledge and articulate. All these experiences have been deliberately introduced so that learning may be meaningful and enjoyable.

It may be noted that in the units, the authors have included several activities and exercises, which are suitable and would enhance learning as well as relieve the tedium of classroom instruction. It is expected that teachers and students would decide upon the number of activities and exercises they can honestly complete within the academic year. Teachers may encourage students to do as many as possible in and outside the classroom to 'fan the flame' of curiosity and joyful learning. Use of ICT has been recommended in these textbooks for seeking information, for making power point presentations, designing educational and promotional materials. In all units, wherever possible, teachers are advised to ensure that the students have exposure and practice with ICT for various purposes.

In addition, a number of inter-disciplinary projects have been included. Every student should have an opportunity to participate in any one project, and it is expected that students would have an opportunity to participate in the chosen project either in groups or in pairs. Since the learners may be relatively unfamiliar with conducting projects, it is essential that the project be guided by the teacher throughout, from the planning stage to execution and report writing.

The syllabii for all chapters delineated in further detail are given herein. In the process of developing the textbook, the teams have expressed the need for highlighting and including and deleting some selected issues. Thus, some modifications have emerged that are indicated in a tabular form.

Class XII Syllabus printed in Class XI textbook	Modifications in the Class XII textbook
<p>Unit I: Work, livelihood and career; Preparation, choices and selection</p> <ul style="list-style-type: none"> ● Work, age and gender ● Occupational heritage of India ● Career options ● Entrepreneurship and self employment ● Life skills for career building 	<p>Unit I: Work, Livelihood and Career</p> <ul style="list-style-type: none"> ● Quality of Life ● Social Responsibility and Volunteerism ● Traditional Occupations of India ● Work, Age and Gender ● Attitudes and Approaches to Work ● Life Skills and Quality of Work Life ● Work and Work Environment ● Entrepreneurship
<p>Unit II: Career Opportunities</p> <p>Scope of Human Ecology and Family Sciences in higher education and careers</p> <p>Major concepts, relevance and skills in the following areas</p>	<p>Career Opportunities</p> <p>Scope of Human Ecology and Family Sciences in higher education and careers</p> <p>Major Concepts, Relevance and Skills in the Following Units</p>
<p>A. Nutrition, Food Science and Technology</p> <p>Specific Careers and Areas</p> <ul style="list-style-type: none"> ● Clinical nutrition and dietetics ● Public nutrition and health ● Catering and food services management ● Food processing and technology ● Food quality and food safety 	<p>Unit II: Nutrition, Food Science and Technology</p> <p>Specific Careers and Areas</p> <ul style="list-style-type: none"> ● Clinical Nutrition and Dietetics ● Public Nutrition and Health ● Catering and Food Services Management ● Food Processing and Technology ● Food Quality and Food Safety

Class XII Syllabus printed in Class XI textbook	Modifications in the Class XII textbook
<p>B. Human Development and Family Studies</p> <p>Specific Careers and Areas</p> <ul style="list-style-type: none"> ● Early childhood care and education ● Guidance and counselling ● Special education and support services ● Support services for children in difficult circumstances ● Management of institutions and programmes for children, youth and elderly 	<p>Unit III: Human Development and Family Studies</p> <p>Specific Careers and Areas</p> <ul style="list-style-type: none"> ● Early Childhood Care and Education ● Guidance and Counselling ● Special Education and Support Services ● Management of Support Services, Institutions and Programmes for Children, Youth and Elderly
<p>C. Fabric and Apparel</p> <p>Specific Careers and Areas</p> <ul style="list-style-type: none"> ● Care and maintenance of fabrics in institutions ● Design for fabric and apparel ● Retailing and merchandising ● Production and quality control in garment industry ● Museumology and textile conservation 	<p>Unit IV: Fabric and Apparel</p> <p>Specific Careers and Areas</p> <ul style="list-style-type: none"> ● Design for Fabric and Apparel ● Fashion Merchandising ● Production and Quality Control in Garment Industry ● Textile Conservation in Museums ● Care and Maintenance of Fabrics in Institutions

Class XII Syllabus printed in Class XI textbook	Modifications in the Class XII textbook
<p>D. Resource Management</p> <p>Specific Careers and Areas</p> <ul style="list-style-type: none"> ● Human Resource Management ● Hospitality management ● Designing of interior and exterior space ● Event management ● Consumer services 	<p>Unit V: Resource Management</p> <p>Specific Careers and Areas</p> <ul style="list-style-type: none"> ● Human Resource Management ● Hospitality Management ● Ergonomics and Designing of Interior and Exterior Spaces ● Event Management ● Consumer Education and Protection
<p>E. Communication and Extension</p> <p>Specific Careers and Areas</p> <ul style="list-style-type: none"> ● Management of development Programmes. ● Development communication and journalism ● Media management and advocacy ● Media, design and production ● Corporate communication and public relations 	<p>Unit VI: Communication and Extension</p> <p>Specific Careers and Areas</p> <ul style="list-style-type: none"> ● Development Communication and Journalism ● Advocacy ● Media Management, Design and Production ● Corporate Communication and Public Relation ● Management of Development Programmes

PRACTICALS AND PROJECTS

Class XII Syllabus printed in Class XI textbook	Modifications in the Class XII textbook
<p>Nutrition, Food Science and Technology</p> <ol style="list-style-type: none"> 1. Qualitative tests on food adulteration 2. Development and preparation of supplementary foods for nutrition programmes 3. Planning messages for nutrition, health and life skills using different modes of communication for different focal groups 4. Preservation of foods using traditional and / or contemporary methods 5. Packaging and study of shelf life of the prepared products 	<p>Nutrition, Food Science and Technology</p> <ul style="list-style-type: none"> ● Qualitative tests on food adulteration ● Development and preparation of supplementary foods for nutrition programmes ● Planning a menu for a school canteen or midday meal scheme ● Modification of a normal diet to soft diet for elderly person ● Design, Preparation and Evaluation of a processed food product
<p>Human Development and Family Studies</p> <ol style="list-style-type: none"> 6. Preparation and use of teaching aids, using indigenous and locally available material to communicate socially relevant messages for children, adolescents and adults in the community 7. Conducting mock sessions among peers in career guidance, nutrition counselling and personal counselling under supervision 	<p>Human Development and Family Studies</p> <ul style="list-style-type: none"> ● Preparation and use of teaching aids, using indigenous and locally available material to communicate socially relevant messages for children, adolescents and adults in the community ● Conducting mock sessions among peers in career guidance, nutrition counselling and personal counselling under supervision

<p>Fabric and Apparel</p> <p>8. Preparation of articles using applied textile design techniques: tie and dye/ batik/block printing</p> <p>9. Application of quality control techniques in garment industry:</p> <ol style="list-style-type: none"> Fabric inspection Quality of seams and notions Size labels Packaging <p>10. Care and maintenance of fabric products:</p> <ol style="list-style-type: none"> Mending Cleaning Storage 	<p>Fabric and Apparel</p> <ul style="list-style-type: none"> ● Preparation of articles using applied textile design techniques: tie and dye/batik/ block printing ● Developing a female fashion figure ● Application of quality control techniques in garment industry: <ol style="list-style-type: none"> Fabric inspection Quality of seams and notions Size labels ● Care and maintenance of fabric products: <ol style="list-style-type: none"> Mending Cleaning
<p>Resource Management</p> <p>11. Open an account in bank/ post office. Learn basic banking operations (Mock exercises in the lab with real bank forms)</p> <p>12. Application of traditional/ contemporary techniques of home decorations:</p> <ol style="list-style-type: none"> Floor and wall decorations Flower arrangement Other forms of local decorations 	<p>Resource Management</p> <ul style="list-style-type: none"> ● Observe and critically analyse any event on the basis of the specified criteria. ● Make a leaflet or a pamphlet for consumer education (any one of the following): <ol style="list-style-type: none"> CPA (Consumer Protection Act) Consumer responsibilities Consumer organisations Consumer problems ● Evaluate an advertisement

Extension and Communication	Communication and Extension
<p>13. Analysis and discussion of print, radio, and electronic media with reference to: focus, presentation, technology and cost</p> <p>14. Communicating with groups on any one of the following themes:</p> <ol style="list-style-type: none"> a. Social messages- gender equality, AIDs, female foeticide, child labour, rights abuse and other such themes b. Scientific fact / discovery c. Any significant incident/ event 	<ul style="list-style-type: none"> ● Analysis and disccussion of <ul style="list-style-type: none"> - print - radio - electronic media with reference to: focus, presentation, technology and cost

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Class XII Syllabus printed in Class XI textbook	Modifications in the Class XII textbook
<p>Projects</p> <p>Any one of the following may be undertaken and evaluated:</p> <ol style="list-style-type: none"> 1. <ol style="list-style-type: none"> a. Analysis of traditional occupations prevalent in one's local area, their beginnings, present status and challenges faced b. Analysis of gender roles, entrepreneurial opportunities, and future careers and family participation 2. Documentation of any public/mass campaign being implemented in own area, with reference to: <ol style="list-style-type: none"> a. Purpose of campaign b. Focal group c. Modalities of implementation d. Stakeholders involved e. Media and methods used <p>Comment on the relevance of the campaign.</p> 3. Study of an integrated community based programme being implemented in own area, with reference to: <ol style="list-style-type: none"> a. Programme objectives b. Focal group c. Modalities of implementation d. Stakeholders involved 	<p>Projects</p> <p>Note: Any one of the following projects may be undertaken and evaluated:</p> <ol style="list-style-type: none"> 1. <ol style="list-style-type: none"> a. Analysis of traditional occupations prevalent in one's local area, their beginnings, present status and challenges faced b. Analyse gender roles, entrepreneurial opportunities and future careers and family participation 2. Documentation of any public/mass campaign being implemented in own area, with reference to: <ol style="list-style-type: none"> a. Purpose of campaign b. Focal group c. Modalities of implementation d. Stakeholders involved e. Media and methods used <p>Comment on the relevance of the campaign.</p> 3. Study of an integrated community-based, nutrition/health programme being implemented in own area, with reference to: <ol style="list-style-type: none"> a. Programme objectives b. Focal group c. Modalities of implementation d. Stakeholders involved

<p>4. Visit to the neighbouring areas and interviews with two adolescents and two adults regarding their perception of persons with special needs.</p> <p>5. Profile any one person with special needs, child or adult: to find out their diet, clothing, activities, physical and psychological needs.</p> <p>6. Observe and document any event in your school/ home or neighbourhood. Evaluate the same with respect to:</p> <ol style="list-style-type: none"> Relevance Resource availability and mobilisation Planning and execution of the event Financial implications Feedback from stakeholders <p>Suggest modifications for the future.</p>	<p>4. Visit to the neighbouring areas and interviews with two adolescents and two adults regarding their perception of persons with special needs.</p> <p>5. Profile any one person with special needs, child or adult: to find out their diet, clothing, activities, physical and psychological needs.</p> <p>6. Plan and execute any event in your school. Evaluate the same with respect to:</p> <ol style="list-style-type: none"> Its relevance Resource availability and mobilisation Planning and execution of the event Financial Implications Feedback from stakeholders Suggest modifications for the future. <p>7. Planning messages for nutrition, health and life skills using different modes of communication for different focal groups.</p> <p>8. Market survey of processed foods, their packaging and label information.</p>
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THE CONSTITUTION OF INDIA

PREAMBLE

WE, THE PEOPLE OF INDIA, having solemnly resolved to constitute India into a ¹**[SOVEREIGN SOCIALIST SECULAR DEMOCRATIC REPUBLIC]** and to secure to all its citizens :

JUSTICE, social, economic and political;

LIBERTY of thought, expression, belief, faith and worship;

EQUALITY of status and of opportunity; and to promote among them all

FRATERNITY assuring the dignity of the individual and the ²[unity and integrity of the Nation];

IN OUR CONSTITUENT ASSEMBLY this twenty-sixth day of November, 1949 do **HEREBY ADOPT, ENACT AND GIVE TO OURSELVES THIS CONSTITUTION.**

1. Subs. by the Constitution (Forty-second Amendment) Act, 1976, Sec.2, for "Sovereign Democratic Republic" (w.e.f. 3.1.1977)
2. Subs. by the Constitution (Forty-second Amendment) Act, 1976, Sec.2, for "Unity of the Nation" (w.e.f. 3.1.1977)

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